Theodore Roosevelt National Park

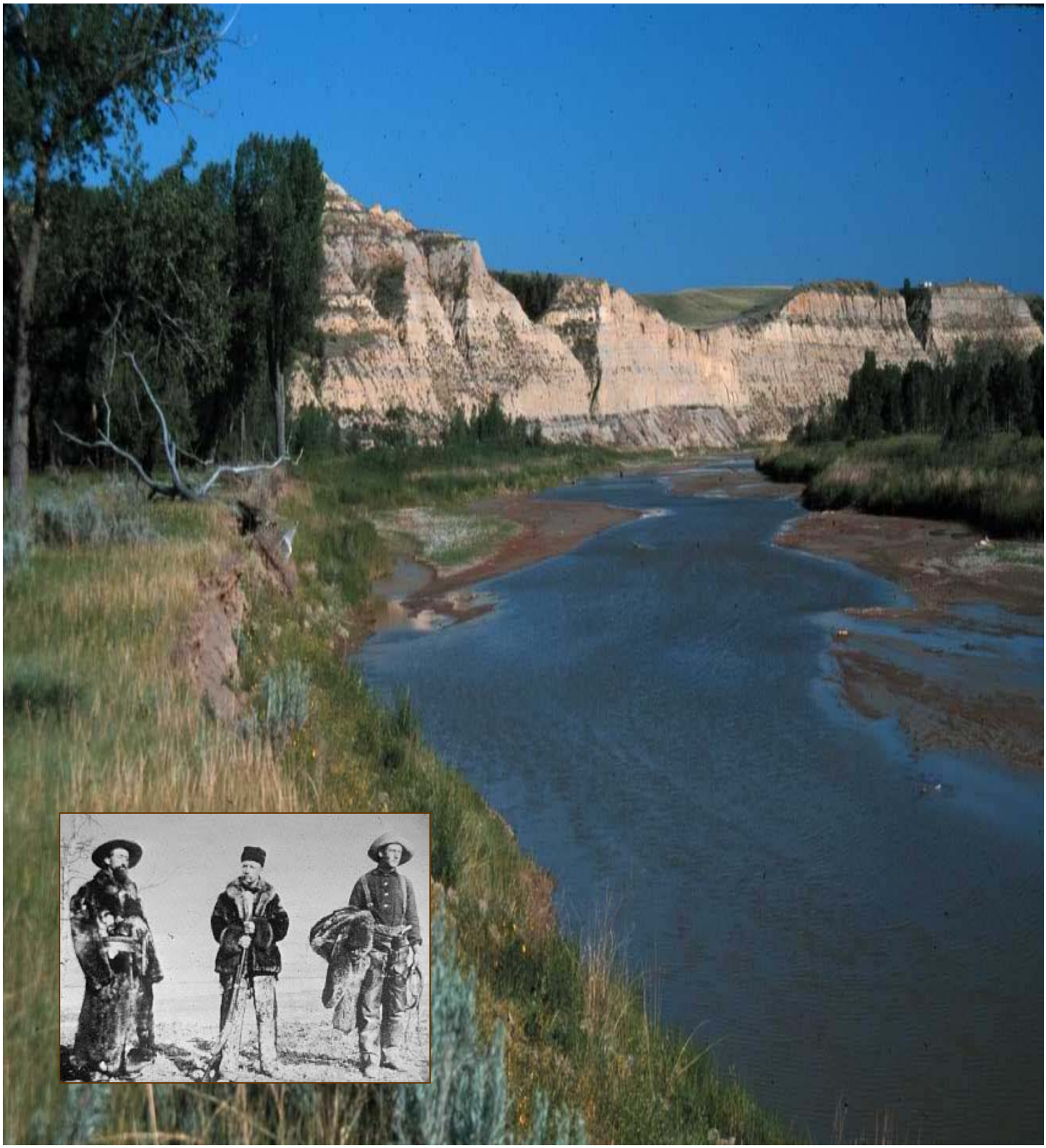
National Park Service
U.S. Department of the Interior

Theodore Roosevelt National Park
North Dakota

Environmental Assessment

Boundary Expansion Study

November 2002



ENVIRONMENTAL ASSESSMENT

Boundary Expansion Study

PUBLIC REVIEW DRAFT

Prepared For:
National Park Service

Prepared By:
engineering-environmental Management, Inc.

Theodore Roosevelt National Park
North Dakota

U.S. Department of the Interior, National Park Service
Environmental Assessment: Boundary Expansion Study
Theodore Roosevelt National Park; Billings County, North Dakota

---

Summary

The National Park Service (NPS) proposes to expand the Elkhorn Ranch Unit of Theodore Roosevelt National Park by about 6,581 acres to protect more of Roosevelt's original ranch. A portion of the boundary expansion area is prominently visible from Roosevelt's Elkhorn Ranch home site, which is protected within the park. In addition to protecting a critical portion of the historic setting and scenic viewshed, the boundary expansion would provide opportunities for recreation and public enjoyment. The boundary expansion lands include parcels owned or administered by private individuals, the State Historical Society of North Dakota, North Dakota State Schools, and the U.S. Forest Service. Private land would be purchased only from willing sellers. Current uses of the land include cattle ranching, oil and gas exploration and production, agriculture, and hunting. Details of future management would be decided by a new general management plan, but it is expected that grazing and oil and gas activities would continue and cropland would be converted back to native vegetation. The National Park Service recommends that Congress continue to allow hunting. NPS units that allow hunting are typically called "preserves." Existing ranch buildings would be adaptively reused for park purposes; recreational facilities like campgrounds and trails would be added; and interpretation and education programs would be provided.

The proposed action would have no new or negligible impacts on ethnographic resources, hazardous materials, prime and unique farmland, environmental justice, and Indian trust resources.

There would be long-term, minor to moderate, beneficial effects to cultural resources; long-term, negligible to moderate, beneficial and adverse effects to biological resources; short- and long-term, minor to major, beneficial effects to threatened and endangered species, and long-term, minor to moderate, beneficial and minor adverse effects to water quality. There would be long-term, adverse, negligible to minor impacts to soils. Intermittent, short-term, negligible, adverse, and long-term, negligible to minor, beneficial effects to air quality, and long-term, minor to moderate, beneficial effects to visual resources and noise, and long-term, minor to moderate, beneficial, and negligible adverse effects to land use and recreational opportunities would result. In addition, there would be long-term minor to moderate beneficial and adverse effects to park operations; short -term, negligible to moderate, and long-term, negligible to minor, adverse impacts to nonfederal oil and gas management; and long-term, negligible to minor, beneficial effects, short-term minor to major beneficial effects, and long-term, negligible, adverse impacts to socioeconomics.

Note to Reviewers and Respondents

If you wish to comment on this environmental assessment, you may mail or e-mail comments to the address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their name and home address from the record, which we will honor to the extent allowable by law. *If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comments*.

We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please address comments to: Andy Banta, Superintendent; Theodore Roosevelt National Park; PO Box 7; Medora, ND 58645; E-mail: andy_banta@nps.gov

COMMENTS ARE DUE DECEMBER 20, 2002

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ATV	All Terrain Vehicle
AUM	Animal Unit Month
BLM	Bureau of Land Management
BP	Before Present
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DO	Director's Order
DoD	Department of Defense
DOI	Department of the Interior
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973, as amended
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GMP	General Management Plan
HRS	Historic Resource Study
ISC	Invasive Species Council
NEPA	National Environmental Protection Act of 1969
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ORV	Offroad Recreational Vehicle
PILT	Payment In Lieu of Taxes
PL	Public Law
Service	U.S. Fish and Wildlife Service
SHSND	State Historical Society of North Dakota
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service

SCOPE OF THIS DOCUMENT

This boundary study/environmental assessment investigates the suitability and feasibility of adding specific land tracts (about 6,581 acres total) to the Elkhorn Ranch Unit of Theodore Roosevelt National Park. Its purpose is to provide the National Park Service and legislators with enough information to decide whether the expansion lands meet National Park Service criteria for expansion, and whether the expansion lands would be feasible for the National Park Service to administer as part of Theodore Roosevelt National Park. The study/environmental assessment also includes a general-level analysis to determine if significant impacts would result if the park expansion went forward.

This is not a comprehensive boundary study, which would identify and evaluate *all* lands adjacent to the park to determine whether they are suitable and feasible for addition to the park. Comprehensive boundary studies are often accomplished during general management planning for parks. The 1987 *General Management Plan* (GMP) for Theodore Roosevelt National Park provided limited information regarding management of adjacent lands, and did not include a comprehensive boundary study.

If the park boundary were expanded by the U.S. Congress, general management of lands in the expansion (long-term development needs, cultural and natural resource management, visitor use, etc.) and impacts thereof would be addressed in a new GMP/environmental impact statement. The GMP planning process would include seeking and incorporating public input. Details of minerals management, fire management, and the like would also be provided in a new GMP or more detailed implementation plans that would also provide opportunities for public input.

INTRODUCTION

During 2000, Theodore Roosevelt National Park managers were contacted by the Eberts family, who live on and own land directly across the Little Missouri River from the Elkhorn Ranch Unit of the park. The Eberts expressed a desire to sell their 5,150-acre ranch to the National Park Service (NPS) to honor Theodore Roosevelt and to ensure that land he once owned and used would not be developed or subdivided by future landowners. Roosevelt's experiences in this badlands area of North Dakota eventually resulted in his reputation as "the conservation president."

> "It was not until he settled in the badlands and discovered the vulnerability of this fragile ecology to profit-seekers from outside, that he began to ponder the policies that culminated in his unsurpassed achievements as our first conservation president. To my mind, there is no memorial of marble or bronze anywhere in the country that evokes the conscience of Theodore Roosevelt as powerfully as the Elkhorn bottom and its surrounding hills. It is a crucible of calm, a refuge from the roar of worldly getting and spending..."
>
> —Edmund Morris, Roosevelt scholar and historian (1992)

The Eberts property was once part of Theodore Roosevelt's Elkhorn Ranch. The boundaries of Roosevelt's ranch are not known, but Roosevelt wrote in 1887, "My home ranch lies on both sides of the Little Missouri, the nearest ranchman above me being about twelve, and the nearest below me about ten, miles distant."

Roosevelt grazed his cattle, hunted, and wrote profusely about his experiences on what is now the Eberts' land:

> "My home ranch stands on the river brink. From the low, long veranda, shaded by leafy cottonwood, one looks across sand-bars… to a strip of meadowland, behind which rises a line of sheer cliffs and grass plateaus. This veranda is a pleasant place… gazing sleepily out at the weird looking buttes opposite, until their sharp outlines grown indistinct and purple in the after-glow of the sunset."
>
> —Theodore Roosevelt (1885), describing what is now the Eberts Ranch

There are some smaller parcels of public and private land adjacent to, and in some cases surrounded by, the Eberts Ranch. Collectively, the Eberts Ranch and the smaller parcels of public and private land, about 6,600 acres in all, are referred to as the study area for the purposes of this study/environmental assessment (figure 5).

FIGURE 1. EBERTS RANCH

FIGURE 2. EBERTS RANCH AND THE LITTLE MISSOURI RIVER

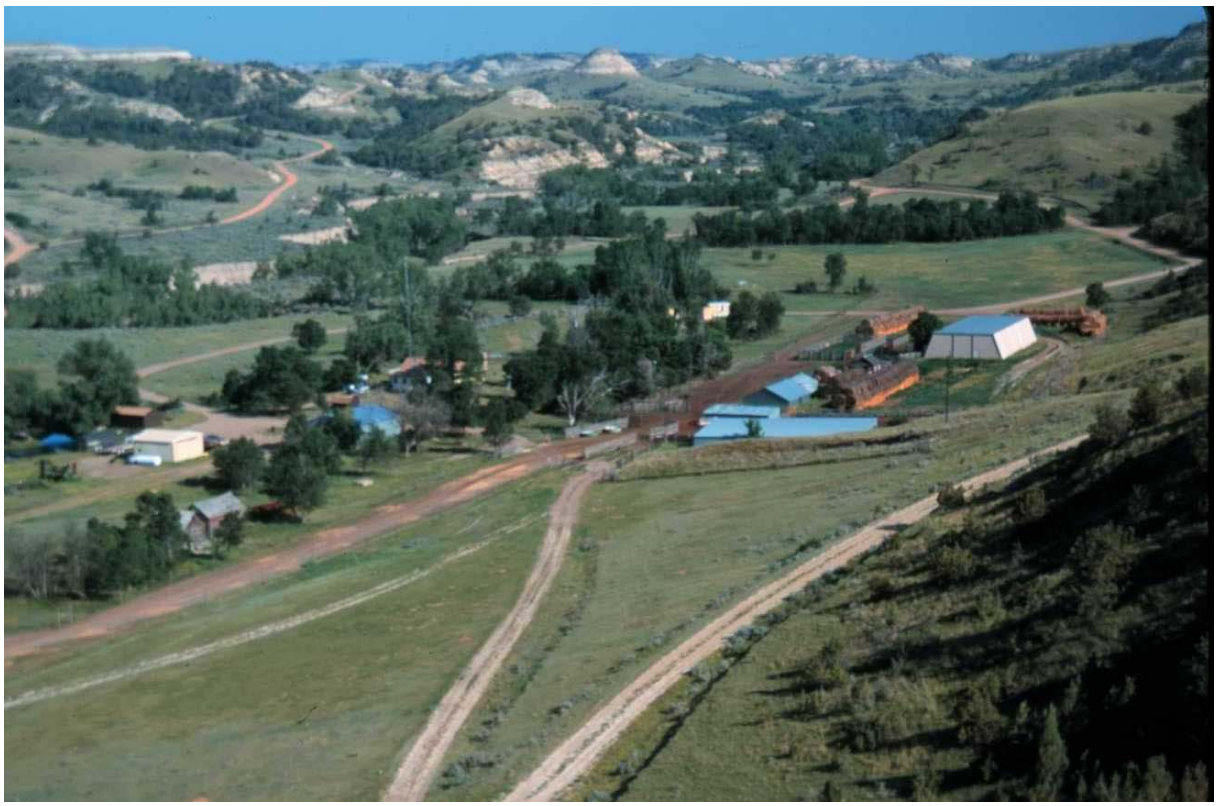


FIGURE 3. EBERTS RANCH HEADQUARTERS

There is an opportunity to expand the park to protect a portion of Roosevelt's original ranch that is prominently visible from the ranch home site, and to consolidate ownership of public lands through a land exchange between the National Park Service and the U.S. Forest Service (USFS). Lands identified for possible addition to the park would protect a critical portion of the historic setting and scenic viewshed and provide opportunities for public enjoyment related to park purposes.

Development of the study area lands by a private developer could compromise the scenic resources of the Elkhorn Ranch Unit, and place other special natural and cultural resources at risk. The Trust for Public Land, a national nonprofit organization that conserves land for parks, natural areas, and open space, is interested in helping the National Park Service take advantage of the opportunity to acquire these lands.

LEGISLATIVE HISTORY AND PARK MISSION

Legislative History

Theodore Roosevelt National Park is located in McKenzie and Billings Counties in western North Dakota. It consists of three units: the North Unit, the Elkhorn Ranch Unit, and the South Unit.

The park had its beginnings in August 1934, when Civilian Conservation Corps (CCC) camps, under the sponsorship of the North Dakota State Historical Society and the direction of the National Park Service, began work in what was then known as Roosevelt Regional State Park.

On 25 April 1947, a locally supported congressional bill that became Public Law (PL) 38 (61 Stat. 52) established the area as Theodore Roosevelt National Memorial Park. The act of 10 June 1948 (62 Stat. 352) amended the establishing act, added more land, and also corrected the description of the Elkhorn Ranch Unit lands. The act of 12 June 1948 (62 State. 384) added the North Unit to the park.

The act of 24 March 1956 (70 Stat. 55) added lands on the north side of the town of Medora for park headquarters development. This act also authorized the Secretary of the Interior to make future boundary adjustments along U.S. 10 and U.S. 85, due to realignment with certain acreage limitations. The secretary adjusted the boundaries in 1963 to conform to the realignment of U.S. 10, now reconstructed and designated I-94. This excluded 398 acres and added 459 acres.

The act of 10 November 1978, designated the memorial park "Theodore Roosevelt National Park" (PL 95-625, 92 Stat. 3467). It also designated 29,920 acres within the park as wilderness and authorized a boundary adjustment at the North Unit to add about 146 acres to and delete about 160 acres from the park.

Park Purpose, Significance, and Mission

The purposes of Theodore Roosevelt National Park are to:

- *Memorialize and pay tribute to Theodore Roosevelt for his enduring contributions to the conservation of our nation's resources.*
- *Conserve unimpaired the scenery and the natural and cultural resources, plus facilitate the scientific interests in Theodore Roosevelt National Park.*
- *Provide for the benefit, use, and enjoyment of the people.*
- *Manage the Theodore Roosevelt wilderness as part of the National Wilderness Preservation System.*

The significance of Theodore Roosevelt National Park is as follows:

- *The colorful North Dakota badlands provide the scenic backdrop to the park, which memorializes the 26th President for his enduring contributions to the conservation of our nation's resources.*

- *The park allows people to enjoy panoramic vistas and a sense of solitude, inspiration, and timelessness similar to Theodore Roosevelt's experience in the Dakota Territory in the 1880s. The area provides an opportunity to learn about an environment and way of life that helped shape Theodore Roosevelt 's attitudes and philosophy regarding conservation.*

- *The Little Missouri River has shaped the land, which is home to a variety of prairie plants and animals, including bison, elk, bighorn sheep, and wild horses. A park experience is created by the interplay of natural forces, including weather, vegetation, wildlife, vistas, smells, color and shape of landforms, air quality, varied light, and seasons.*

- *Ongoing geological activities create spectacular examples of badlands and provide opportunities for visual interpretation of erosional processes.*

- *The park contains one of the few islands of designated wilderness in the northern Great Plains.*

- *The park is designated as a Class I air quality area, providing for clean air, brilliant, clear day and night skies, and outstanding examples of a relatively unpolluted environment.*

- *The park has one of the largest petrified forests in the United States and extensive paleontological deposits from the Paleocene epoch that provide outstanding examples for visitor viewing.*

The mission statement for Theodore Roosevelt National Park:

> *Theodore Roosevelt National Park diligently protects and preserves the natural scene and the cultural landscape, and provides the opportunity to understand and appreciate the rugged Little Missouri Badlands topography, with its unique flora and fauna, which inspired Theodore Roosevelt in the 1880s. The park projects the spirit of Roosevelt's conservation ethic and his enthusiasm for the natural world. Discovery of this unique and outstanding unit of the National Park System will create a sense of surprise and wonderment that will lead to an understanding of the role of humankind as an integral part of nature*

PURPOSE AND NEED FOR THE PROPOSED ACTION

The National Park Service is considering expanding the boundary of Theodore Roosevelt National Park in Billings County, North Dakota. Property owners adjacent to the Elkhorn Ranch Unit of the park have recently expressed interest in selling their land to the National Park Service to honor

Roosevelt, and prevent development or subdivision by future owners. This is an opportunity to expand the park to protect a portion of Roosevelt's original ranch, some of which is prominently visible from Roosevelt's Elkhorn Ranch home site. The expansion would allow for the protection of a critical portion of the historic scenic viewshed and provide opportunities for public enjoyment related to park purposes.

Portions of the boundary study area were identified as an area of special concern in the park's *General Management Plan* (GMP) (1987). According to the park's *Land Protection Plan* (1990), this area "is important in conveying to the visitor a sense of the isolation and character of the landscape that influenced Roosevelt in the development of his great conservation ethic." The Theodore Roosevelt National Park *Statement for Management* (1994) includes the following goals that would be met or supported by the proposed expansion:

- The park manages the resources associated with Theodore Roosevelt and his life and times in the Badlands.

- The park is managed within the Little Missouri River Badlands ecosystem, influenced by human activities while allowing protection of natural processes to continue.

- Visitors to Theodore Roosevelt National Park appreciate, understand, and visualize the open range era in the Badlands.

Currently, the historic scene of the former Theodore Roosevelt ranch site (Elkhorn Ranch) is inadequately protected. Development of the study area lands by private developers could compromise the scenic resources and park values of the Elkhorn Ranch Unit and place other special natural and cultural resources at risk. A plan to build a new road segment and bridge in the immediate area has been proposed several times. This proposal and other potential changes in land use would be incompatible with the purposes of the park.

An environmental assessment (EA) analyzes the proposed action and alternative(s) and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR) 1508.9), and the NPS Director's Order (DO)−12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*).

APPLICABLE REGULATORY REQUIREMENTS AND AGENCY COORDINATION

Theodore Roosevelt National Park and the National Park Service are responsible for compliance with all environmental regulations associated with implementing the preferred alternative. Some federal and NPS environmental regulations/guidance documents applicable to this planning process are listed in table 1.

TABLE 1. ENVIRONMENTAL REQUIREMENTS – LAWS, REGULATIONS, AND OTHER GUIDANCE

Regulatory Driver	Oversight Agency	Environmental Requirements
Federal Public Laws and Executive Orders		
National Park Service Organic Act of 1916 (PL 64-235)	United States Department of the Interior (DOI); National Park Service	Mandates the National Park Service to "conserve the scenery and the natural and historic objects and the wildlife [in parks, monuments, and reservations] and to provide for the enjoyment of the same in such manner as will leave them unimpaired for the enjoyment of future generations."
Farmland Protection Policy Act (FPPA) (PL 97-98 December 1981)	United States Department of Agriculture (USDA)	Minimizes the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural resources.
Executive Order (EO) 11988, Floodplain Management	NPS	Provides direction regarding actions of federal agencies in floodplains, and requires permits from state and federal review agencies for any construction within a floodplain.
EO 11990, Protection of Wetlands	NPS	Requires federal agencies to avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative, and all practicable measures to minimize harm to wetlands has been implemented.
EO 11514, Protection and Enhancement of Environmental Quality	CEQ	Federal agencies shall initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. They shall monitor, evaluate, and control agency activities to protect and enhance the quality of the environment.
EO 11593, Protection and Enhancement of the Cultural Environment	DOI	All federal agencies are required to locate, identify, and record all cultural and natural resources. Cultural resources include sites of archaeological, historical, or architectural significance. Natural resources include the presence of endangered species, critical habitat, and areas of special biological significance.
EO 11644, Use of Off Road Vehicles on the Public Lands	DOI	Federal agencies shall "provide for procedures that will ensure that the use of off-road vehicles on public land will be controlled and directed so as to protect the resources of those lands."
EO 11987, Exotic Organisms	USDA; DOI	Agencies shall restrict the introduction of exotic species into the natural ecosystems on lands and waters which they administer.
EO 12088, Federal Compliance With Pollution Control Standards.	United States Environmental Protection Agency (EPA)	This EO delegates responsibility to the head of each executive agency for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution. This order gives the EPA authority to conduct reviews and inspections to monitor federal facility compliance with pollution control standards.

Regulatory Driver	Oversight Agency	Environmental Requirements
EO 12898, Environmental Justice	EPA	This EO requires certain federal agencies, including the Department of Defense (DoD), to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
EO 13112, Exotic and Invasive Species	Invasive Species Council (ISC); DOI	To prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.
EO 13045, Protection of Children from Environmental Health and Safety Risks	Task Force on Environmental Health Risks and Safety Risks to Children	This EO makes it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. It also directs agencies to ensure that policies, programs, activities, and standards address such risks if identified.
United States Codes		
NEPA; PL 91-190, 42 USC 4321 et seq.	EPA	Requires federal agencies to utilize a systematic approach when assessing environmental impacts of federal actions. NEPA proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts to the environment.
Clean Air Act, 42 USC 7401-7671q, 14 July 1955, as amended	EPA	This act, as amended, is known as the Clean Air Act of 1970. The amendments made in 1970 established the core of the clean air program. The primary objective is to establish federal standards for air pollutants. It is designed to improve air quality in areas of the country which do not meet federal standards and to prevent significant deterioration in areas where air quality exceeds those standards.
Federal Water Pollution Control Act (Clean Water Act), 33 USC 1251-1387	U.S. Army Corps of Engineers (USACE)	The Clean Water Act is a comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Primary authority for the implementation and enforcement rests with the EPA.
Migratory Bird Treaty Act 16 USC 703-712	U.S. Fish and Wildlife Service (Service)	The Migratory Bird Treaty Act implements various treaties for the protection of migratory birds. Under the act, taking, killing, or possessing migratory birds is unlawful.
Endangered Species Act of 1973, as amended; PL 93-205, 16 USC 1531 et seq.	Service	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Under this law, no federal action is allowed to jeopardize the continued existence of an endangered or threatened species. The Endangered Species Act also requires consultation with the Service and the National Marine Fisheries Service and the preparation of a biological assessment when such species are present in an area that is affected by government activities.

Regulatory Driver	Oversight Agency	Environmental Requirements
National Historic Preservation Act, 16 USC 470 et seq.	Advisory Council on Historic Preservation (ACHP); NPS	Requires federal agencies to take account of the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through listing on the NRHP), and protection of historical and cultural properties of significance."
Federal Noxious Weed Act of 1974, 7 USC 2801-2814	USDA; DOI	The act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.
NPS Nonfederal Oil and Gas Regulations, 36 CFR 9B	NPS	The regulations assist park managers in managing oil and gas activities so they may be conducted in a manner consistent with the NPS mandate to protect park resources and values. The application and implementation of these regulations on the ground must be assessed parkwide for each site-specific oil and gas activity to determine if these activities have the potential to impair park resources and values. These regulations are intended to impose reasonable regulations on activities which involve and affect federally owned land in national park units.
National Park Service		
NPS Management Policies 2001	NPS	The basic service-wide policy document of the National Park Service. It is the highest of three levels of guidance documents in the NPS Directives System.
DO–12 and Handbook	DOI; NPS	Outlines practices for meeting the legal requirements of NEPA.

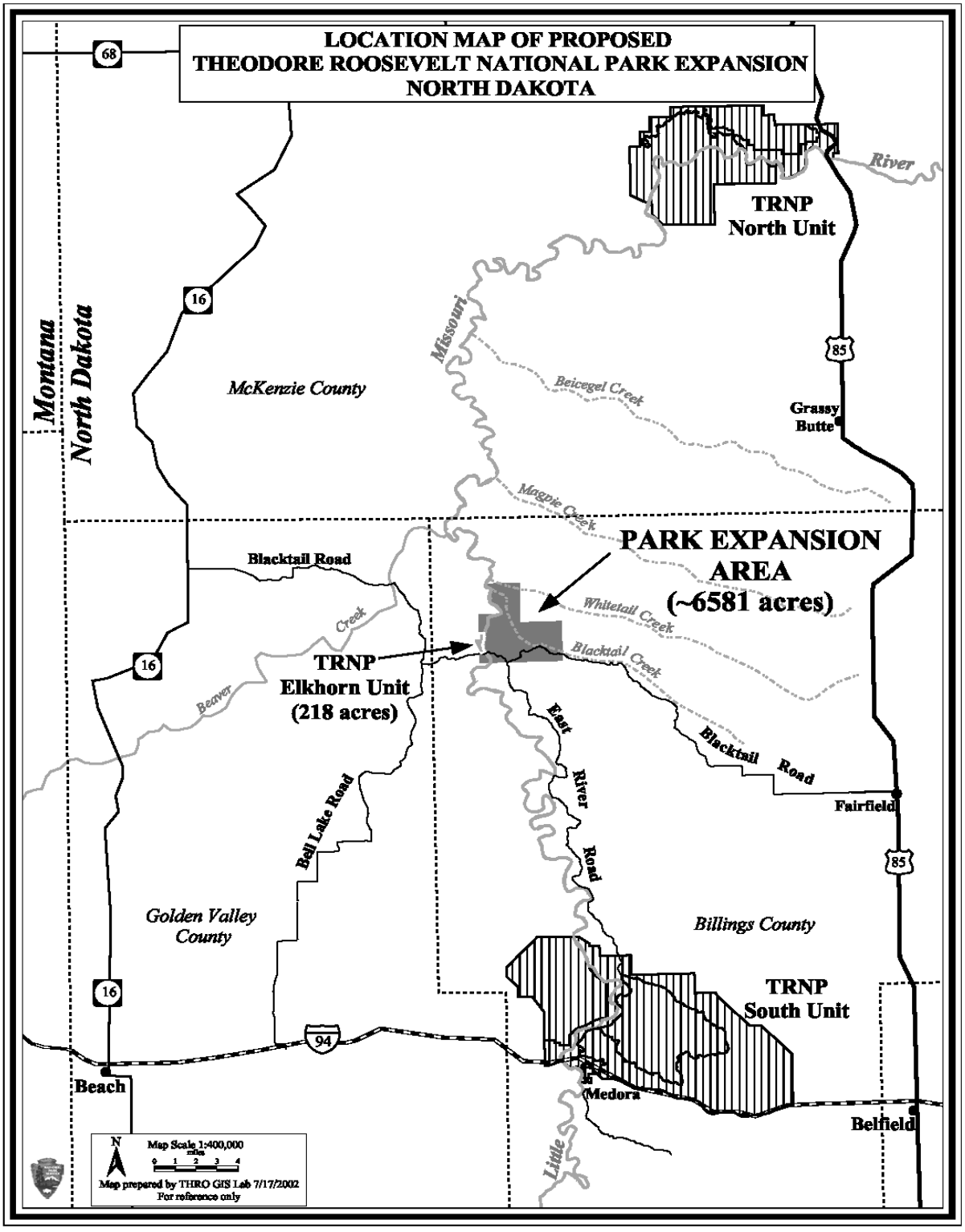


FIGURE 4. VICINITY MAP OF THEODORE ROOSEVELT NATIONAL PARK

ALTERNATIVES FOR BOUNDARY EXPANSION

ALTERNATIVE A: NO-ACTION

Under the "no-action" alternative, existing management of Theodore Roosevelt National Park and the study area would continue. The park would not be expanded from its present 70,447 acres in three units, and the National Park Service would not acquire the lands in the study area. The no-action alternative would not protect the Elkhorn Ranch Unit of Theodore Roosevelt National Park from future surrounding land uses that could jeopardize scenic vistas and other resource values that are integral to the purpose and significance of the park, and in particular, the Elkhorn Ranch Unit. The study area and other lands owned and used by Roosevelt would not be protected.

Grazing, oil and gas, and crop production activities would probably continue under current practices unless the landowners decided to sell the properties to another individual or entity who changed the land use. Conceivably, the land could ultimately be converted to a guest ranch or subdivided for "ranchettes" (i.e., smaller properties of about 5–20 acres). The State Historical Society of North Dakota (SHSND) and State School Lands tracts would likely remain in state ownership and there would be no change in management.

Special natural, cultural, and recreational resources related to the park's purpose that are located outside the present boundary of the Elkhorn Ranch Unit would not be protected or interpreted. Stream corridors and sensitive vegetative communities and wildlife habitat could be degraded from grazing, agriculture, or oil and gas production, or from new uses. Fires would probably continue to be suppressed.

Recreation and interpretive opportunities would be limited to those currently associated with the existing Elkhorn Ranch Unit and the adjacent national grassland. Hunting would continue in the study area. Off-road vehicle and snowmobile use would probably remain very low.

ALTERNATIVE B (NATIONAL PARK SERVICE PREFERRED ALTERNATIVE)

Alternative B, the NPS preferred alternative, would expand the boundary of Theodore Roosevelt National Park near the Elkhorn Ranch Unit (currently 218 acres) by a little less than 6,600 acres. Boundary expansion lands would consist of the privately owned Eberts Ranch, two smaller privately owned parcels, and parcels managed by the SHSND, North Dakota State Schools, and the USFS. The boundary expansion would generally follow geographic section lines and the Little Missouri River (figure 5). The study area would be protected under this alternative, but not all of the property owned by Roosevelt would be protected. Table 2 lists the individual land parcels included in alternative B.

The largest component of the boundary expansion is the main portion of the Eberts Ranch (4,190 acres). The ranch is currently managed for cattle/calf production. The property extends to the middle of the Little Missouri River on the west side, and otherwise generally follows geographic section lines.

The Eberts property also includes detached parcels in Section 27, Township 143N, Range 101W (640 acres); Section 24, Township 144N, Range 102W (160 acres); and Section 35, Township 144N, Range 101W (160 acres) (see appendix B). These detached parcels would not be included in the boundary expansion, but they would be purchased by the National Park Service with the intent to exchange them with the U.S. Forest Service for USFS-administered properties within the expanded park boundary (see discussion below).

The boundary expansion would include approximately 966 acres (Sections 3 and 4, Township 143N, Range 102W) owned by two different members of the Mosser family. The National Park Service also proposes to acquire 320 acres of Mosser land located about 3 miles west of the Elkhorn Ranch Unit, and 80 acres located 20 miles south and 7 miles west of Medora (see appendix B). These two parcels are adjacent to USFS holdings. The National Park Service would seek to exchange these 400 acres, plus 320 acres of Eberts land (detached parcels in Sections 24 and 35), for approximately 560 acres of USFS land within the boundary expansion area (see table 2 for a list of the five USFS parcels totaling 560 acres). Such an exchange would help to consolidate NPS and USFS holdings and make administration of the affected parcels by the agencies more efficient and effective. See appendix B, for a list of parcels outside the boundary expansion area that would be purchased for exchange purposes.

TABLE 2. LAND PARCELS INCLUDED IN THE BOUNDARY EXPANSION, ALTERNATIVE B

Owner/Manager	Land Parcels	Acreage by Owner/ Manager
Eberts Family	T144N, R102W, Sections 34, 35, and portion of Sections 21, 22, 27, and 33 (all east of the Little Missouri River). T143N, R102W, Section 1 and a portion of Section 2 (east of the Little Missouri River)	4,190 acres
State of North Dakota School Lands	T144N, R102W, Section 36 (east of the Little Missouri River)	640 acres
State Historical Society of North Dakota	T144N, R102W, a portion of Section 33, and T143N, R102W, a portion of Section 4 (west of the Little Missouri River)	225 acres
U.S. Forest Service	T143N, R102W, a portion of Sections 2 and 4 (east of the Little Missouri River). T144N, R102W, a portion of Section 28, in two parcels (east of Little Missouri River) T144N, R102W, a portion of Section 22 (east of the Little Missouri River)	560 acres
Marjorie Mosser	T143N, R102W, a portion of Sections 3 and 4 (east of the Little Missouri River)	964 acres
Douglas Mosser	T143N, R102W, portions of Section 3 (east of the Little Missouri River)	2 acres
TOTAL BOUNDARY EXPANSION AREA		**6,581 acres**

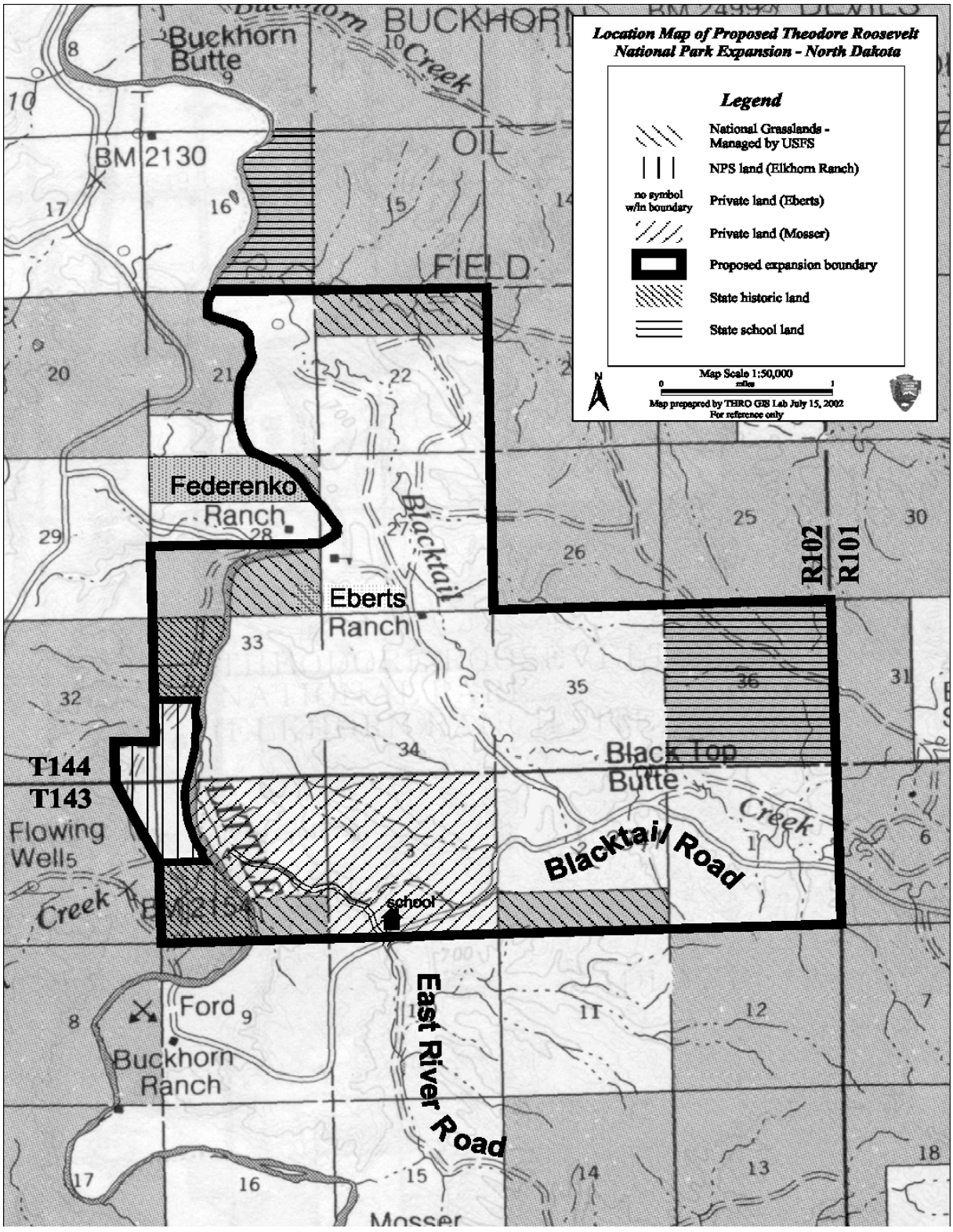


FIGURE 5. LAND OWNERSHIP OF THE PROPERTIES IDENTIFIED FOR INCLUSION IN THE THEODORE ROOSEVELT NATIONAL PARK BOUNDARY EXPANSION

Two parcels of SHSND land immediately to the north and south of the Elkhorn Ranch Unit of the park (on the west side of the river) would be included in the boundary expansion. The north parcel is about 98 acres in size, and the south parcel is about 126 acres, for a rounded total of 225 acres.

The boundary expansion would also include 640 acres of state of North Dakota School Lands (Section 36, Township 144N, Range 102W) adjacent to the Eberts Ranch. The National Park Service would seek to exchange a 640-acre detached parcel owned by the Eberts (Section 27, Township 143N, Range 101W) for the 640 acres of State School Lands in Section 36.

Private lands would be acquired from the owners only if they are willing sellers. The SHSND lands would be acquired by donation or exchange. The State School Lands would be acquired by donation or exchange. An administrative land transfer or exchange would be necessary to transfer the USFS lands to the National Park Service. The USFS is a cooperating agency on the preparation of this EA and Boundary Expansion Study.

Development on the park expansion lands would be limited. Ranch buildings on the Eberts property would likely be adaptively reused to meet additional NPS operating requirements (e.g., providing ranger offices, a visitor contact area, and maintenance functions). About four additional full-time equivalent NPS staff members would be needed, and some of these employees would be based at the Eberts ranch site.

A communications tower for a radio repeater may be needed. Campgrounds (for example, vehicle accessible campsites, canoe campsites and perhaps a Maah Daah Hey Trail campsite on the east side of the river) could also be developed within the Elkhorn Ranch Unit. A gravel road could be extended to provide access to some of these opportunities. New trails could be provided. Such actions would be determined in a future new GMP.

Natural resources management of the expansion area would include active management of exotic species, conversion of the 428 acres of cropland back to native vegetation, management of grazing to reduce cattle impacts on streambeds, and possibly restoration of disturbed wetland habitat. The National Park Service would seek to obtain the water rights currently owned by the Eberts and use them for park purposes such as irrigation for prairie and native vegetation restoration. These water rights would be put to beneficial uses as defined by state water law. A fire management program would be implemented by the National Park Service once a Fire Management Plan/EA is developed and approved. Until then, all fires within the boundary expansion area would be suppressed.

Cultural resources management of the expansion area would include the completion of archaeological and historic structure surveys, a cultural landscape inventory, and ethnographic resource study. Any historic properties identified would be managed as mandated by federal and NPS policy.

Grazing would be allowed in the park expansion area, and alternatives to traditional grazing strategies (e.g., grass banks, swing pastures, twice-over grazing) would be explored through the GMP planning process. Until a new GMP is approved, grazing would continue for cultural resource reasons and biological needs on an annual basis, but probably at reduced levels. The USFS and Medora Grazing Association may be invited to cooperate with the park in the management of grazing permits in the park expansion area. The USFS would decide how to manage the grazing allotment associated with the Eberts base property once the base property is purchased by the federal government.

The National Park Service would continue to recognize all valid existing rights associated with nonfederal mineral rights and federal leases existing as of the date Congress declares the subject land within the boundary expansion of the park. Both of these types of existing rights fall under the scope of the Fifth Amendment to the U.S. Constitution. The National Park Service would work cooperatively with the holders of valid mineral rights to assist them in minimizing impacts to park resources and values. Existing nonfederal oil and gas operations would be "grandfathered" under NPS regulations at 36 CFR Part 9, Subpart B, governing nonfederal oil and gas development in parks; that is, they would continue to operate under existing permit requirements. Existing federal lessees would also continue to operate in accordance with the terms of their leases and site specific authorizations, although the issuance of new federal mineral leases in the boundary expansion area would not be permissible. Operators seeking to conduct new nonfederal oil and gas operations within the boundary expansion area would need to submit a proposed plan of operations to the National Park Service for approval in accordance with the 9B regulations. The National Park Service would provide assistance to operators preparing such plans. Such assistance would include sharing information on techniques used by operators in other NPS units to safeguard park resources and values. Examples include the use of containerized mud disposal systems, measures to protect the environment in the event of spills, setbacks from water bodies, placement of pumpjacks and other infrastructure below ridgetops and out of the viewshed if possible, and the use of quieter power sources.

Recreational opportunities would be expanded. New backcountry trails, interpretive programs (including interpretation of multiple uses such as grazing and oil and gas development), and environmental education programs could be developed. Specific direction for management of the expansion lands would be provided in a new GMP.

Grazing and hunting are historical uses of the property and commensurate with Theodore Roosevelt’s use of the property. In order to preserve the cultural landscape and historical use of the property, the National Park Service recommends that Congress continue to allow hunting and grazing. National Park System units that allow hunting are typically called “preserves”. Off-road vehicle and snowmobile use would be prohibited except in special circumstances (e.g., authorized use by permittees and administrative uses such as search and rescue, fire fighting, etc.).

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

The National Park Service initially also considered a boundary expansion alternative that would have expanded Theodore Roosevelt National Park by 22,714 acres by incorporating approximately 16,000 acres of the USFS grazing allotment assigned to the Eberts ranch property. This option was identified as alternative 3 in the park's scoping and media releases and it was suggested that the lands in this much larger area would be designated as a Theodore Roosevelt National Preserve managed by the park.

This alternative was originally considered because of several factors. It would have placed most of the Blacktail Creek and Whitetail Creek watersheds under the management of the National Park Service. The larger area includes more of Theodore Roosevelt's original ranchland. The larger expansion would not separate the grazing allotment that has been tied to the Eberts family ranch (and the previous owners) from the land that makes up the base property for the grazing permit. The approximately 23,000-acre allotment would have included most of the viewshed of the Eberts Ranch and is bounded by ridgelines on the north, east, and south. Management of future recreational opportunities within the 23,000 acres would have been under one agency.

This alternative was dismissed from further consideration after NPS policy considerations were raised about a large expansion and designation of a national preserve with a boundary study/EA. The National Parks Omnibus Management Act of 1998 (PL 105-391) prohibits the National Park Service from studying designation of new park system units without specific congressional authority. In addition, jurisdictional concerns related to the management of multiple uses were raised during public scoping.

There are 54 active oil and gas wells on the USFS land included in this alternative. These wells produce a total of 1,342 barrels of oil per day (ND Petroleum Council letter 2002). Grazing of this allotment by the Eberts family is administered by the Medora Grazing Association under a permit from the USFS. Management of wildlife and hunting on this 16,000-acre allotment is under the exclusive jurisdiction of the North Dakota Department of Game and Fish. The additional 16,000 acres also includes four additional private land parcels totaling 800 acres. (Two of these four landowners contacted the park during the scoping process and indicated a willingness to have their land appraised for possible sale to the National Park Service.) Finally, while there was support for alternative 3, the USFS, Billings County Commissioners, North Dakota Game and Fish Department, and Medora Grazing Association objected to inclusion of the 16,000-acre allotment within the boundary expansion of the Elkhorn Ranch Unit.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

According to CEQ regulations implementing NEPA, and the National Park Service NEPA Guidelines (DO−12), an environmentally preferred alternative must be identified in an EA. In

order for an alternative to be environmentally preferred, it must meet the criteria established in section 101(b) of NEPA and subsequently adopted by the National Park Service. An alternative must meet the following criteria to be considered an environmentally preferred alternative:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative B is the environmentally preferred alternative (see table 8 for a summary of environmental consequences). Boundary expansion to include the study area lands would allow the current generation to serve as trustee of the environment for future generations; ensure safe, healthful, productive, and pleasing surroundings; attain a wide range of beneficial uses of the environment without undesirable consequences; preserve important historic, cultural, and natural aspects of our national heritage; and achieve a balance between population and resource use that permits high standards of living and sharing of life's amenities.

Alternative A, the no-action alternative, fails to meet the criteria listed above. If the study area did not become part of the park, it might be sold and converted to land uses that would compromise scenic values, the historic setting of the Elkhorn Ranch Unit, and other resources and opportunities related to park purposes. This alternative would not allow the current generation to be trustees of the environment for future generations; could not ensure a safe, healthful, productive, and esthetically/culturally pleasing surrounding; would not allow the National Park Service to attain the widest range of beneficial uses without degradation or risk to health and safety; would not preserve and provide opportunities to experience diverse historic, cultural, and natural aspects of our heritage with a variety of individual choice; and would not best balance population and resource use that permits high standards of living and a wide sharing of life's amenities.

AFFECTED ENVIRONMENT

The "Affected Environment" section describes the existing environment of Theodore Roosevelt National Park and the study area. The focus is on key park and study area resources, visitor experiences, socioeconomic characteristics, and park operations that could be affected by the alternatives should they be implemented. These topics were selected based on federal law, regulations, executive orders, NPS expertise, and concerns expressed by other agencies or members of the public during project scoping.

Project scoping consists of two distinct efforts that occur at different stages of the planning process: internal and external scoping. Internal scoping is simply the use of NPS staff (at the support office, regional, park, or National Program Center level) to decide what needs to be analyzed in a NEPA document. It is an interdisciplinary process and, at a minimum, it is used to define issues, alternatives, and data needs of the document (NPS 2001). External, or public scoping, occurs throughout the NEPA process, involving affected and interested members of the public, as well as federal, state, and local agencies, and Indian tribes. Public scoping seeks to:

- determine important issues,
- eliminate issues that are not important or relevant,
- identify relationships to other planning efforts or documents, and
- "size the analysis box," which includes defining purpose and need, agency objectives and constraints, and the range of alternatives (NPS 2001).

Impact topics were identified by the planning team with input from other federal and state agencies, as well as on the basis of federal laws, regulations, orders, and NPS policy. The topics discussed and analyzed in this EA are listed below, and the rationale for dismissing specific topics from detailed analysis follows. The conditions described establish the baseline for the analysis of effects in the "Environmental Consequences" section.

IMPACT TOPICS CONSIDERED IN THIS ENVIRONMENTAL ASSESSMENT

Cultural Resources
Biological Communities
Threatened and Endangered Species
Water Quality
Soils
Air Quality
Visual Resources and Noise
Land Use and Recreational Opportunities
Park Operations
Nonfederal Oil and Gas Management
Socioeconomic Environment

IMPACT TOPICS CONSIDERED BUT NOT ANALYZED IN DETAIL

Ethnographic Resources

Ethnographic resources are identified by the groups that have an ancestral association with a given area. Three Affiliated Tribes (Mandan, Hidatsa, Arikara), Standing Rock Lakota Sioux Tribe, Fort Peck Assiniboine and Sioux Tribes, and Gros Ventre are culturally linked to the region. Phone calls were made and letters were sent to the culturally affiliated tribes asking for input. They have not identified any ethnographic resources in the study area. Therefore, ethnographic resources were dismissed from further analysis in this document. This topic would be revisited if new information becomes available in future planning efforts, including the park's new GMP.

Hazardous and Toxic Materials/Waste

Initial ground observations in the study area conducted by park staff, primarily from vehicles, have not turned up any evidence of hazardous waste. Two ranch-type garbage dumps have been identified on the Eberts ranch. Hazardous wastes that are sometimes associated with ranches include herbicides, pesticides, paints, solvents, fuels, and the like. The Eberts stated that they have not placed any potentially hazardous material in the two dumps. On the Mosser property, there is a trailer house and a few associated outbuildings. The trailer and outbuildings have been used as a rental cabin and are not associated with an active ranch or farm operation. This property is not expected to have a garbage dump with hazardous wastes.

Since the other land within the study area has not been developed, it is unlikely there are any dumps on these USFS or state parcels. The Eberts graze their cattle on these parcels and report that they haven't seen any dumps or other hazardous wastes.

There are numerous oil and gas facilities on the private lands within the study area. Both the USFS and the Industrial Commission of North Dakota closely monitor and regulate the use and disposal of hazardous materials/wastes associated with oil and gas development. The greatest potential for hazardous waste associated with oil and gas production is at older well sites that have been closed for some time, and may have operated prior to active regulation of such activities. However, observations by Theodore Roosevelt National Park staff have not identified any evidence of hazardous waste around these facilities.

Nevertheless, the National Park Service will conduct Phase 1 (and if necessary, Phase 2) environmental baseline surveys of the boundary expansion lands prior to acquiring any new property. Based on the limited potential for the presence of hazardous wastes, this impact topic was dismissed from further consideration.

Lightscapes

In accordance with *NPS Management Policies*, the National Park Service strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human-caused light. Lightscapes would not be affected by the boundary expansion alternatives. This topic was therefore dismissed from further analysis.

Prime and Unique Farmland

The National Park Service contacted the USDA, Natural Resources Conservation Service (NRCS) to determine if the boundary expansion is subject to the Farmland Protection Policy Act (FPPA; PL 97-98, December 1981). The NRCS has national leadership for administering the FPPA, the purpose of which is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Farmland, as used in the FPPA, includes “prime” farmland, “unique” farmland, and “land of statewide or local importance.”

The NRCS responded that, because grazing would be allowed to continue as a management tool under the proposed boundary expansion, there is no conversion of lands to a nonagricultural use. Therefore, the FPPA does not apply (NRCS 2002). As a result of this coordination, the impact topic of Prime and Unique Farmland was dismissed from further consideration in this EA.

Environmental Justice

Executive Order 12898, *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. No alternative would have health or environmental effects on minorities or low-income populations or communities as defined in the EPA's *Draft Environmental Justice Guidance* (July 1996). Environmental justice was dismissed from detailed analysis.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by DOI agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in Theodore Roosevelt National Park. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian trust resources were dismissed as an impact topic.

DESCRIPTION OF THE STUDY AREA

Theodore Roosevelt National Park, located in western North Dakota, consists of three separate units: North, South, and Elkhorn Ranch. A central unifying feature of the 110-square mile (approximately 70,447 acres) park is the free flowing Little Missouri River, which flows through the North and South units and forms the eastern boundary of the Elkhorn Ranch Unit. The landscape is characterized by badlands and grassy uplands. The South and Elkhorn Ranch Units are in Billings County and the North Unit is in McKenzie County. The nearest town to the study area is Medora, to the south of the South Unit (figure 4).

The study area is composed of approximately 6,581 acres. The largest component is the privately owned Eberts Ranch (4,190 acres). Smaller components include two privately owned parcels and parcels managed by the SHSND, State of North Dakota Land Department, and the USFS. The boundary expansion would generally follow geographic section lines and the Little Missouri River (see figure 5 and table 2).

Natural and cultural resources of the study area have been evaluated using the NPS *History and Natural History* Thematic Frameworks. Collectively, the study area has the following Natural History Thematic Framework:

GROUP I: Landforms of the Present
- Theme 1 – Plains, Plateaus, and Mesas
- Theme 6 – Sculpture of the Land
- Theme 8 – River Systems and Lakes

GROUP II: Geologic History
- Theme 19 – Oligocene – Recent Epochs

GROUP III: Land Ecosystems
- Theme 25 – Grasslands
- Theme 33 – Streams

Cultural resources in the study area collectively have the following History Thematic Framework:

THEME I: Peopling Places
- Topic 3 – Migration from Outside and Within
- Topic 5 – Ethnic Homelands

THEME IV: Shaping the Political Landscape
Topic 4 – Political Ideas, Cultures, and Theories

THEME V: Developing the American Economy
Topic 1 – Extraction and Production
Topic 2 – Distribution and Consumption

THEME VII: Transforming the Environment
Topic 1 – Manipulating the Environment and its Resources
Topic 3 – Protecting and Preserving the Environment

The themes listed above were extrapolated from "History in the National Park Service, Themes and Concepts" (NPS 2000). There has been no formal Historic Resource Study (HRS) completed on the park. Following are the historic studies that have been completed at Theodore Roosevelt National Park:

Historic Structure Report for CCC Structures, Peaceful Valley Ranch, Maltese Cross Cabin, and Elkhorn Ranch. September 1980, prepared by Louis Torres, Denver Service Center, National Park Service.

Roosevelt's Elkhorn Ranch, by Ray H. Mattison, published in North Dakota Historical Society Quarterly, Vol. 27, No. 2, Spring 1960.

Peaceful Valley Ranch: An Extended Narrative History, April 1993, Dori M. Penny and Thomas K. Larson Larson-Tibesar Associates, Laramie, WY.

Furnishing Plan for a Badlands Ranch House, 31 October 1969, by Genard E. Brown, Office of Archeology and Historic Preservation, National Park Service.

These reports were primarily focused on providing basic historical data essential for the preservation or restoration of structures within the park and for nomination of the site to the NRHP. None of the above studies identified specific history themes. In addition there have been archaeological investigations at the Peaceful Valley Ranch and the Elkhorn Ranch Site.

CULTURAL RESOURCES

Different types of cultural resources are vulnerable to a variety of threats. For example, pottery may be damaged or destroyed by grazing cattle, horses, and off-road vehicles. Structures, on the other hand, may be vulnerable to neglect. Other sites might be impacted by road building, various construction activities, or landscaping. Without proactive management, important resources may be lost. Resource types are divided into three categories in this EA: ethnographic resources (which was dismissed from detailed analysis), archaeological resources, and historic structures, districts, and cultural landscapes. The latter two categories are presented in the following sections.

Archaeological Resources

The park contains a wide range of cultural resources. Archeological material dating to the Paleoindian period has been documented in the state, but it is relatively rare. Evidence of Paleoindian occupation of Theodore Roosevelt National Park is limited to a single Plano tradition (10,900–7500 years before present [BP]) Agate Basin projectile point found on the surface. The Archaic period (7500–2100 BP) follows the Paleoindian period. Several Archaic sites occur near the park. One multi-component site is just northeast of the park's North Unit. The McKean Complex (5000–3000 BP) of the Archaic period is well represented in the northern plains and the park. Materials from the McKean Complex have been identified in surface contexts at ten sites within the park. The Pelican Lake Complex (3000–2100 BP) follows the McKean Complex and it is represented at six locations in the park in association with other materials (NPS n.d.).

The Plains Woodland tradition follows the Archaic period. It is roughly dated between 2100 BP to 1200 BP. Several sites in McKenzie County contain evidence of Plains Woodland occupation. As of October 1988, there were 26 sites with Plains Woodland components in the Little Missouri River Grassland (NPS 1990). Eight sites representing the Plains Woodland period occur in the park (NPS n.d.).

Two prehistoric periods span into the historic period. The Plains Village tradition became apparent approximately 800 BP and was concentrated on the Missouri River. Procurement sites and camps of this period have been recorded in the area. The Equestrian period began 250 BP with the introduction of the horse. As of 1990, no sites of this period were recorded in the area surrounding Theodore Roosevelt National Park (NPS 1990). Several park sites have been assigned "Late Prehistoric" affiliations that are not specific to Plains Woodland, Plains Village, or Equestrian traditions (NPS n.d.).

The Historic period, which began approximately 300 years ago, is well represented with at least 46 historic sites located within the park, most notably Theodore Roosevelt's Elkhorn Ranch. Many more sites exist in McKenzie, Golden Valley, and Billings Counties.

An archaeological (reconnaissance level) survey of the SHSND lands was completed in 1990. Surveyors noted that the parcels were heavily vegetated (compromising their ability to note surface deposits). A historic depression and associated barbed wire and fence posts were recorded on the south parcel (SHSND 2002). With their proximity to the Elkhorn Ranch, there is the likelihood of identifying more historic archaeological sites on the tracts There is limited information regarding cultural resources within the Eberts and Mosser properties. There is potential for prehistoric resources, especially on ridgetops and the cottonwood bottomlands. Potential site types may include eagle traps, tipi rings, and lithic scatters (collection of chipped stone). With such a long period of continual use, the potential exists for a wealth of historic resources associated with ranching to occur in the study area. It is surmised that approximately 650 historic homestead sites are located in Billings and McKenzie Counties (NPS n.d.).

Historic Structures, Districts, and Cultural Landscapes

There is limited information regarding cultural resources in the study area because, except for the SHSND tracts, no comprehensive surveys have been completed in the study area. The Annear Schoolhouse, located on the Mosser property, was built in 1917 and closed in 1966. Upon evaluation, it may be eligible for the NRHP as a historic structure. Various other resources associated with historic land use might exist in the study area, including fences, corrals, water impoundments, roads, and other structures. The buildings associated with the Eberts family ranch are modern and probably not historic. However, the National Park Service would conduct surveys of all land added to the park through the boundary expansion and update the List of Classified Structures (an evaluated inventory of all historic and prehistoric structures of architectural or engineering significance).

As mentioned above, a portion of Theodore Roosevelt's Elkhorn Ranch (the Elkhorn Ranch Unit of the park) has been nominated to the NRHP as a historic archaeological site (there are no remaining structures on the 218-acre site). Currently, Elkhorn Ranch is considered too small to be nominated for the NRHP as a cultural landscape (district). However, it is being managed by park staff as a cultural landscape, which entails more than preservation of the archaeological site. The historic scene and flora are preserved and maintained to appear as they would have in the 1880s. This could include everything from the perpetuation of the cottonwood draw along the river to the protection of vistas. Much of the surrounding landscape (including the study area) remains roughly as it appeared when the future president experienced it in the 1880s. Views from and of the property are excellent and expansive. Several oil pumpjacks and ranch buildings exist on the property (study area), but few are currently visible from the Elkhorn Ranch Unit on the west side of the river.

Decisions regarding the management of historic structures, districts, and cultural landscapes would be addressed further in a future new GMP.

BIOLOGICAL COMMUNITIES

This section describes the general biotic environment of the study area, including vegetation, wildlife, and fisheries and wildlife habitat. Threatened and endangered species are discussed in a separate section.

Vegetation

The study area has a common boundary with the Elkhorn Ranch Unit of Theodore Roosevelt National Park along the Little Missouri River, and supports similar habitat and vegetation. Plant

communities in the study area include grasslands, shrublands, wetlands, and the riparian corridor of the Little Missouri River.

Grasslands. Great Plains grasslands evolved under the dynamic forces of grazing bison, fire, and rest. During the last century, grasslands in the study area have been subject to grazing without rest, and fires have been suppressed. The result is that native grasslands have changed in composition to favor species that are less dependent on these natural processes.

The vegetation of the study area has not been completely surveyed. Based on studies of nearby areas (USFS 2001, Cogan et al. 1999), upland grassland species expected to occur include blue grama (*Bouteloua gracilis*), threadleaf sedge (*Carex filifolia*), club moss (*Selaginella* sp.), western wheatgrass (*Pascopyrum smithii*), the exotic crested wheatgrass (*Agropyron cristatum*), needle-and-thread (*Stipa comata*), green needlegrass (*Nassella viridula*), needleleaf sedge (*Carex duriuscula*), plains reedgrass (*Calamagrostis montanensis*), little bluestem (*Schizachyrium scoparium*), sand bluestem (*Andropogon hallii*), and sideoats grama (*Bouteloua curtipendula*) (USFS 2001).

Shrublands. The badland environments of the study area contain silver sagebrush (*Arrtemisia cana*), shadscale (*Atriplex confertifolia*), creeping juniper (*Juniperus horizontalis*), and Wyoming big sagebrush (*Artemisia ridentate*) shrubland species, including Rocky Mountain juniper (*Juniperus scopulorum*) forests. Upland areas and drainages may be dominated by silver sagebrush, spiny saltbush (*Rhagodia spinescens*), sand sagebrush (*Oligosporus filifolius*), fringed sagewort (*Artemisia frigida*), greasewood (*Sarcobatus vermiculatus*), rabbitbrush, willow (*Salix* sp.), or other shrubs. Wooded draws and upland thickets are dominated by snowberry (*Symphocarpus albus*), buffaloberry (*Shepherdia argentea*), chokecherry (*Prunus virginana*), American plum (*Prunus Americana*), or other shrubby species (USFS 2001).

Wetlands. Wetlands, apart from woody floodplains, are limited within the boundaries of the study area. However, those that do occur would likely be shrub-scrub and herbaceous wetlands. Shrub-scrub wetlands found in Theodore Roosevelt National Park and the surrounding lands are dominated by sandbar willow (*Salix exigua*). Within the park and surrounding lands, emergent wetlands are dominated by the prairie cordgrass (*Spartina pectinata*) temporarily flooded herbaceous alliance. This alliance is dominated by prairie cordgrass, while foxtail barley (*Hordeum jubatum*) and western wheatgrass are the most common secondary species (Cogan et al. 2000). Small wetlands have been noted as growing on seeps and around springs. More extensive wetlands occur within large depressions, within and along perennial drainages, and around livestock ponds, as well as small water storage reservoirs. These emergent wetlands are typically dominated by spikerush (*Eleocharis* spp.), Arctic rush (*Juncus arcticus*), cattails (*Typha* spp.), and foxtail barley (Cogan et al. 1999).

Riparian Corridors. The riparian corridor of the Little Missouri River is dominated by eastern cottonwood (*Populus deltoides*) and peachleaf willow (*Salix amygdaloides*) woodlands. The presence of sandbar willow in the understory of these woodlands illustrates the mesic nature of the habitat (Cogan et al. 1999). Additional shrub species common to these mesic riparian corridors include red-osier dogwood (*Cornus stonlinifera*), buffalo currant (*Ribes odoratum*), honeysuckle

(*Lonicera* sp.), buckbrush (*Symphoricarpos occidentalis*), Wood's rose (*Rosa woodsii*), and three-leaved sumac (*Rhus trilobata*) (Cogan et al. 1999). Because of over grazing and lack of control, many exotic species have become established in this habitat as well and are noted in the following discussion.

Exotic Species. Several exotic species have been documented as occurring throughout USFS lands, and would be expected to occur within the boundaries of the proposed expansion. Of the most concern is leafy spurge, which is noxious, invasive, and spreading at a high rate in the Little Missouri National Grassland (USFS 2001). Crested wheatgrass is another exotic species of concern; however, it is not considered noxious or invasive. Crested wheatgrass impacts available forage for livestock along with vegetative diversity for wildlife. It had been used years ago in revegetation projects to stabilize erosive soils and for its high herbage production values (USFS 2001).

Many exotic herbaceous species have been noted along the Little Missouri River riparian corridor, including leafy spurge (*Euphorbia esula*), Kentucky bluegrass (*Poa pratensis*), white sweetclover (*Melilotus alba*), yellow sweetclover (*Melilotus officinalis*), Canada thistle (*Cirsium arvense*), and smooth brome (*Bromopsis inermis*). Native herbaceous species present included Canada wildrye (*Elymus canadensis*), western wheatgrass, wild licorice (*Glycyrrhiza lepidota*), northern bedstraw (*Galium boreale*), meadow-rue (*Thalictrum dasycarpum*), and smooth scouring rush (*Equisetum hyemale*) (Cogan et al. 1999).

Cultivated Lands. Approximately 428 acres of the Eberts property supports cultivated cropland. Currently, alfalfa, hay, and oats are grown on these lands and are used mainly to support the ranching operations.

Wildlife

Wildlife habitat is provided by the varied vegetation communities within the boundaries of the study area. The following classes of animals are likely to occur in the study area: mammals, birds, reptiles, and amphibians. Fisheries and aquatic habitat are discussed separately. Based on its proximity to Theodore Roosevelt National Park, the study area is expected to support many of the same wildlife species as are found in the park.

Mammals. Mammals expected to occur within the boundaries of the study area include carnivores, ungulates, and small mammals.

Carnivores— Coyote (*Canis latrans*), long-tailed weasel (*Mustela frenata*), mink (*Mustela vison*), and badger (*Taxidea taxus*) are common carnivorous mammals that would be expected to occur within the study area (THRO 2001). The owners of the Eberts property have observed coyote, bobcat (*Lynx rufus*), and mountain lion (*Felis concolor*) on their lands.

Ungulates— White-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra Americana*), elk (*Cervus elaphus Canadensis*), and bighorn sheep *(Ovis*

Canadensis) are ungulates (hoofed animals) that may occur in the study area or on lands adjacent to the study area (THRO 2001).

Small Mammals and Others. The small mammals that would be expected within the boundaries of the study area include the least chipmunk (*Tamias minimus*), beaver (*Castor canadensis*), western harvest mouse (*Reithrodontomys megalotis*), prairie vole (*Microtus ochrogaster*), desert cottontail (*Sylvilagus audubonii*), snowshoe hare (*Lepus americanus*), Merriam's shrew (*Sorex merriami*), and black-tailed prairie dog (*Cynomys ludovicianus*) (THRO 2001). It should be noted that park staff state that they have not observed any sizable prairie dog towns on the Eberts property, nor have they found likely habitat (NPS 2002).

Several species of bats are known to occur at Theodore Roosevelt National Park and may occur in the study area. These include the little brown myotis (*Myotis lucifugus*), the big brown bat (*Eptesicus fuscus*), and the hoary bat (*Lasiurus cinereus*) (THRO 2001).

Birds. Birds at Theodore Roosevelt National Park use the native prairie, north- and south-facing slopes, hardwood and juniper draws, sagebrush flats, and undisturbed Little Missouri River bottomlands (TRNHA 1995). As this habitat is available in the study area, it is likely that many of the same bird species that occur in the park occur there too. These include raptors (i.e., birds of prey), waterfowl, wading birds, shorebirds, gallinaceous birds, and migrants.

Raptors— Raptors expected to occur within the boundaries of the study area include the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), the great horned owl (*Bubo virginianus*), and the common nighthawk (*Chordeiles minor*) (TRNHA 1995). Golden eagles (*Aquila chrysaetos*) and bald eagles (*Haliaeetus leucocephalus*) have been observed on the Eberts property.

Waterfowl, Wading birds, and Shorebirds— Mallards (*Anas platyrhynchos*) and blue-winged teals (*Anas discors*) are the most common waterfowl species expected to occur on the study area. The Canada goose (*Branta canadensis*), great blue heron (*Ardea herodias*), and the sandhill crane (*Grus canadensis*) are the most common wading birds expected to occur in the study area as well (TRNHA 1995).

The upland sandpiper (*Bartramia longicauda*) is a shorebird that occurs in grasslands and would be anticipated to occur in this habitat in the study area. The killdeer (*Charadrius vociferous*) is another shorebird likely to occur within the boundaries of the study area (TRNHA 1995).

Gallinaceous Birds— These are upland game birds that are ground dwelling, usually quite secretive, and often found in small flocks (Sibley 2000). The exotic ring-necked pheasant (*Phasianus colchicus*) and native sharp-tailed grouse (*Tympanuchus phasianellus*) are the gallinaceous birds most likely to occur within the study area (TRNHA 1995).

Other Birds— The following bird species are expected to occur on the study area: the hairy woodpecker (*Picoides villosus*), northern flicker (*Colaptes auratus*), black-billed magpie (*Pica pica*),

chipping sparrow (*Spizella passerina*), vesper sparrow (*Pooecetes gramineus*), black-capped chickadee (*Parus atricapillus*), dark-eyed junco (*Junco hyemalis*), field sparrow (*Spizella pusilla*), Lazuli bunting (*Passerina amoena*), western meadowlark (*Sturnella neglecta*), cliff swallow (*Hirundo fulva*), red-eyed vireo, yellow warbler, rock wren, and the American goldfinch (TRNHA 1995). This list is by no means all inclusive, but rather representative of the species commonly observed in the vicinity of the study area.

Reptiles and Amphibians. North Dakota does not support a diverse array of reptile and amphibian species, although local populations of a particular species may become large. The semi-arid climate provides only marginal conditions for amphibian breeding and hibernation, while the low winter temperatures and the short growing season appear to be primary limiting factors for reptiles.

Reptiles with the potential to occur in the study area include the common snapping turtle (*Chelydra serpentina*), the western painted turtle (*Chrysemys picta*), the sagebrush lizard (*Sceloporus graciosus*), short-horned (horned) lizard (*Phrynosoma douglassii*), the western plains garter snake (*Thamnophis radix*), the plains hognose snake (*Heterodon nasicus*), the bullsnake (*Pituophis melanoleucus*), and the venomous prairie rattlesnake (*Crotalus viridis*). Amphibians with the potential to occur within the boundaries of the study area include the tiger salamander (*Ambystoma tigrinum*), the plains spadefoot toad (*Scaphiopus bombifrons*), the Great Plains toad (*Bufo cognatus*), the boreal frog (*Pseudacris nigrita*), and the leopard frog (*Rana pipiens*). Although these species may occur within the boundaries of the study area, they are very rare or infrequently found and are expected to be in quite localized populations (THRO 2001).

Native and Recreational Fisheries. Native fish species are found in the Little Missouri River within the existing Elkhorn Ranch Unit and the study area. Some of the more abundant native fish species include long-nose dace (*Rhinichthys cataractae*), pearl dace (*Margariscus margarita*), finescale dace (*Phoxinus neogaeus*), white sucker (*Catostomus commersoni*), creek chub (*Semotilus atromaculatus*), sand shiner (*Notropis stramineus*), bigmouth shiner (*Notropis dorsalis*), red shiner (*Cyprinella lutrensis*), shorthead redhorse (*Moxostoma macrolepidotum*), fathead minnow (*Pimephales promelas*), stonecat (*Noturus flavus*), black bullhead (*Ameiurus melas*), and channel catfish (*Ictalurus punctatus*) (USFS 2001).

Recreational fisheries in the region are limited to portions of the Little Missouri River where significant numbers of channel catfish occur, and where ponds or reservoirs support largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), yellow perch (*Perca flavescens*), and bullhead. These species commonly make up most of the recreational fishery (USFS 2001).

THREATENED AND ENDANGERED SPECIES

Under the Endangered Species Act of 1973, as amended (ESA), an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A

“threatened species” is defined as any species likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range.

The state of North Dakota defines an "endangered species" as any species whose prospects of survival or recruitment within the state are in jeopardy due to any of the following factors:

1. The destruction, drastic modification, or severe curtailment of its habitat;
2. Its over-utilization for scientific, commercial, or sporting purposes;
3. The effect on it of disease, pollution, or predation;
4. Other natural or manmade factors affecting its prospects of survival or recruitment within the state; and
5. Any combination of the foregoing factors.

The term also includes any species classified as endangered pursuant to the ESA (North Dakota Century Code Title 20.1, Chapter 1, Section 02).

A "threatened species" is defined by the state of North Dakota as any species, which is likely to become an endangered species within the foreseeable future and includes any species classified as threatened pursuant to the ESA (North Dakota Century Code Title 20.1, Chapter 1, Section 02).

The only federally listed species observed by the Eberts on their property is the bald eagle (*Haliaeetus leucocephalus*), listed as threatened under the ESA. Other threatened, endangered, and/or candidate species identified by the Service (USFWS 2002) as possibly occurring in Billings County, North Dakota include the whooping crane (*Grus americana*), black-footed ferret (*Mustela nigripes*), and the black-tailed prairie dog (*Cynomys ludovicianus*). However, the Service stated that they are not aware that any of these species frequent the study area (USFWS 2002).

The whooping crane is federally listed as an endangered species, and an observation in the Little Missouri National Grassland suggests that the species still occurs in this part of North Dakota (USFS 2001). Therefore, the whooping crane may occur in the study area as a migrant. The black-footed ferret, also listed as endangered under the ESA, is found exclusively associated with prairie dog towns. No records of occurrence have occurred in recent years in the study area (USFWS 2002).

The black-tailed prairie dog, a candidate species for listing under the ESA, is known to occur in the Elkhorn Ranch Unit, and may occur in the study area; however, park staff state that they have not observed any prairie dog towns on the Eberts property (NPS 2002). The mountain plover (*Charadrius montanus*), proposed for listing as threatened under the ESA and presumed extirpated in North Dakota, is listed by the North Dakota Parks and Recreation Department as having occurred in the study area (North Dakota Parks and Recreation Department 2002).

Although there are no state listed threatened or endangered species with the potential to occur on the Eberts property (North Dakota Parks and Recreation Department 2002), the North Dakota Parks and Recreation Department has identified rare plants and natural communities that are

present within the boundaries of the proposed expansion. These include a stand of alkali sacaton (listed as imperiled in the state of North Dakota), a silver sage-western wheatgrass scrub community (listed as imperiled or vulnerable in the state of North Dakota), a western little bluestem prairie community (listed as imperiled in the state of North Dakota), green ash upland woodland communities (listed as vulnerable in the state of North Dakota), and a western cottonwood floodplain community (listed as vulnerable in the state of North Dakota) (North Dakota Parks and Recreation Department 2002). Imperiled species are listed as such because of their rarity or because of some factor(s) making them vulnerable to extinction or elimination in North Dakota. Vulnerable species are listed as such because they are very rare and local throughout their range, found only in a restricted range (even if abundant at some locations), or because of other factors making them vulnerable to extinction or elimination in North Dakota (NatureServe Explorer 2001).

WATER RESOURCES

Groundwater

The northern Great Plains aquifer system underlies most of North and South Dakota. The major aquifers of the system are sandstones of the Tertiary and Cretaceous age, and carbonate rocks of Paleozoic age. Locally, unconsolidated, glacial and alluvial deposits of Quaternary age, some of which are highly permeable, overlie the aquifer system (NPS 1998). In general, the aquifers are identified from deepest to shallowest as follows:

1. The Fox-Hills basal Hell Creek Aquifer
2. The upper Hell Creek-lower Ludlow Aquifer
3. The upper Ludlow-lower Tongue River Aquifer
4. The Tongue River Aquifer
5. The Sentinel Butte Aquifer
6. Several shallow alluvial aquifers (USFS 1991)

Currently, Theodore Roosevelt National Park obtains groundwater primarily from two sources: (1) the Fox-Hills-lower Hell Creek Aquifer, and (2) the Tongue River Aquifer of the Fort Union Group, Upper Tertiary. Recharge to both of these aquifers is slow and is easily exceeded by the discharge from the aquifer, which occurs mainly in the form of withdrawal of water from wells. In fact, wells in both of these formations are experiencing a decrease in head, and eventually flow is anticipated to cease from some of them (NPS 1998).

The primary groundwater concerns are salinity and contamination of the shallow alluvial aquifers from nitrates and pesticides. Fertilizer and pesticide leaching are a primary threat to regional groundwater quality because of the increased use over the last three decades (NPS 1998). Underground injection wells associated with oil and gas production activities also have the potential to contaminate groundwater.

Surface Water

The major surface water resource in the study area is a three-mile stretch of the Little Missouri River. This river is 560 miles long, drains an area of about 4,750-square miles, and generally flows northeast until it reaches the Missouri River at Sakakawea Reservoir. The channel undergoes constant bed scour, a condition not expected given the relatively low gradient of the river (4.6-feet per mile). The bed scour is probably a result of the highly erodible bed material derived from the surrounding badlands (NPS 1998).

The volume of flow in the Little Missouri River system varies greatly, from as low as no discharge to as high as 65,000-cubic feet per second. The lowest flows typically occur in winter (December and January), whereas peak flows occur in March and April, probably the result of snowmelt runoff. A secondary peak in June probably coincides with the beginning of summer thunderstorms. Flow in the Little Missouri River can cease completely in dry seasons, leaving only disconnected pools in the streambed (NPS 1998).

Overall, water quality monitoring data from the EPA indicates that surface waters within the Little Missouri River surrounding Theodore Roosevelt National Park have been impacted by human activities, including wastewater discharges, grazing, and oil and gas activities. From 1994 to 1996, eight parameters (turbidity, total coliform, fecal coliform, total sulfate, beryllium, copper, lead, and zinc) exceeded their standard more than 20 percent of the time. The presence of turbidity, sulfate, and several metals, which exceed criteria, are probably explained by runoff from soils and deposits associated with the surficial geology of the Little Missouri River basin. Agricultural practices, petroleum exploration, and production activities in the area exacerbate this problem (NPS 1998).

The majority of first-, second-, and third-order tributary streams (including Blacktail and Whitetail Creeks) are ephemeral, with the higher order streams being intermittent. Ephemeral streams are those that flow briefly only in direct response to precipitation in the immediate locality and whose channels are at all times above the water table. Intermittent, or seasonal, streams are those in contact with the groundwater table that flow at certain times of year. Flows typically occur in intermittent streams when the groundwater table is high and/or when they receive water from a spring or a surface source such as melting snow (NPS 1998).

Seeps and springs may occur in the study area as well. Seeps include surface waters whose discharge is diffuse and generally immeasurable as there is no defined channel or opening where the discharge concentrates. The sources of water supplying the seeps may be local, in which case the seep will respond rapidly to rainfall or drought. Seeps may also be the outlet for underground water that has traveled for long distances (NPS 1998). Springs are a special class of surface water characterized by well-defined flow paths that lend them to water capture and further development. Springs represent the most important source of water for wildlife in the backcountry of Theodore Roosevelt National Park. Like seeps, they may be fed by bodies of permeable materials recharged by local precipitation, or fed through long pathways from distant recharge points (NPS 1998).

Floodplains

The Little Missouri River has a relatively large drainage basin. The velocity of flood flows in the floodplain is considerably less than that in the main channel. Therefore, the threat of flood is often known days in advance (NPS 1998). The 100-year floodplain in the vicinity of the Elkhorn Ranch Unit ranges in width from 1,000 to 2,220 feet. The 500-year floodplain ranges from 1,200 to 2,300 feet wide. One hundred-year floods on the Little Missouri River in the vicinity of the Elkhorn Ranch Unit have an average discharge of 69,000-cubic feet per second and a one percent chance of occurring in any given year. Five hundred-year floods in the vicinity of Elkhorn Ranch have a discharge of approximately 103,000-cubic feet per second and 0.2 percent chance of occurring (NPS 1998). The Little Missouri River floodplain in this area is relatively undeveloped although all of the historic remains in the Elkhorn Ranch Unit are within the 100-year floodplain.

The floodplains of creeks such as Blacktail and Whitetail are typically more confined, which means that floodwaters flow at fast velocities, filling the streambed quickly. Flooding from these creeks is generally caused by intense local thunderstorms, and the threat of flood may be known only hours in advance. Once the floodwaters of these creeks reaches the confluence with the Little Missouri River, the broader floodplains cause the water to spread, reducing the velocities and depths.

Surface Water Classifications

The Little Missouri River, which includes the portion of the river that forms the eastern boundary of the Elkhorn Ranch Unit, has received special designations from both the National Park Service and the state of North Dakota. The 255-mile segment between Lake Sakakawea and Marmarth, North Dakota was nominated and listed on the Nationwide Rivers Inventory in 1982. The Nationwide Rivers Inventory noted that the scenic, recreation, geology, fisheries, historic, and cultural values of this stretch of Little Missouri River are considered “Outstandingly Remarkable Values” (NPS 2001b).

Benke (1990) subsequently analyzed the Nationwide Rivers Inventory to determine free-flowing streams and rivers of high quality. The criteria for a quality stream included: (1) essentially free-flowing for more than 320 miles, (2) a relatively undeveloped stream corridor, and (3) outstanding natural and cultural values (NPS 1998). Another such study (Standford and Ward 1979) used 155-mile uninterrupted stream lengths as one of their criteria. When elements of these criteria were combined and further analyzed (Rabeni 1997), the Little Missouri River in North and South Dakota was one of 14 rivers in the entire prairie region classified as a free-flowing river of high quality with moderately high biological diversity (NPS 1998).

The state of North Dakota has designated the Little Missouri River as Class II, which means that beneficial uses can include aquatic life production, warm and cold water fishing, domestic water supply, irrigation, livestock watering, and recreation. It has also been designated as the only State Scenic River in North Dakota through the Little Missouri State Scenic River Act (North Dakota Century Code Title 61, Chapter 29, Section 06).

The Little Missouri State Scenic River Act expressly prohibits channelization, reservoir construction, or diversion other than for agricultural or recreational purposes, as well as the dredging of the river and its tributaries. Diking and riprapping for erosion control is permitted, while the construction of impoundments (dams) is prohibited. This river received the second highest resource ratings in a North Dakota Parks and Recreation Department evaluation of rivers throughout the state (NPS 1998).

Water Rights

There are two water rights permits associated with the Little Missouri River and the Eberts property (NPS 2002). These rights, which date back to 1940 and 1977, are for surface water withdrawals from the Little Missouri River. They are used for sprinkler irrigation and currently are permitted to irrigate 184 acres of agricultural land. Upon checking with the North Dakota State Water Commission, it was determined that these are the only known water rights associated with the study area. North Dakota requires that all water right permit holders, including the National Park Service, report annual water use associated with permits. The following table summarizes the properties of these water rights.

TABLE 3. WATER RIGHTS OWNED BY THE EBERTS

Water Right Permit Number:	**233**	**2962**
Priority Date	10 January 1940	09 August 1977
Type	Sprinkler Irrigation	Sprinkler Irrigation
Location Number	14410221AC	14410333B
Amount of water right (acre-feet)	67	108.3
Acres currently irrigated	52	132
Water delivery rate (gallons per minute)	700	750

SOILS

Soil characteristics are generally dependent on parent material (geologic substrate), climate, topography, and time. Soils of the study area are predominantly clay and loam-textured regosols and lithosols formed under prairie in a hot, dry, climate. The Badlands-Bainville Association is the predominant soil association. The Bainville soil series consists of excessively drained medium-textured soils developed from calcareous weathered materials found on prairie ridgetops and steep upper slopes. Surface runoff is rapid on the steep slopes and water infiltration is limited. Erosion results in loss of the organic component almost as soon as it forms.

The badlands of the study area are not classified as a soil, but rather as outcrop slopes without soil development. Despite the lack of organic matter and soil structure, sparse vegetation is found on all but the most unstable slopes and strata. Even on the unstable slopes, microtopography can support the establishment of plants.

At the other extreme, under the conditions of greatest local soil development, soils grade into haploborolls (chernozems) with deep profiles, such as the Morton soil series. They are localized and mainly confined to overflow range sites on lower prairie slopes.

The Havre soil series has an alluvial origin and is common in valley bottomlands. The Patent soil series represents recently deposited local sediments on colluvial fans. Both of these series are fine-textured and often have a claypan subsoil and build-up of salts. The sandy Banks soil series is much more restricted and represents recent alluvial deposits. This series is found on bottomlands along the present-day Little Missouri River. Much of the study area is made up of alluvial and colluvial soils in these three soil series.

The Flasher soil series is made up of coarse sandy soils on steep side slopes and crests of sandstone-capped ridges. The coarse gravel Parshall (Cheyenne) soil series is found on the high terrace remnants of the ancestral Little Missouri River such as the Petrified Forest Plateau. Both of these series support prairie vegetation on flat and gentle slopes.

AIR QUALITY

Although Theodore Roosevelt National Park is located in a Class I airshed, the study area for the boundary expansion is a Class II airshed. The study area is located in the Little Missouri airshed, which encompasses the Little Missouri National Grassland in North Dakota. The state of North Dakota does not have any air pollution monitoring equipment near the Little Missouri National Grassland, so the current air quality in and near the grassland is unknown. However, it is known that there are no non-attainment areas in this airshed. Oil and gas leasing on the grassland and windblown dust are the two most likely sources of air pollutants in this area (USFS 2001).

VISUAL RESOURCES AND NOISE

In the evaluation of scenic quality, both the visual character and visual quality of a viewshed should be considered. A viewshed comprises the limits of the visual environment associated with the park. Visibility at Theodore Roosevelt National Park is excellent, with distant topography visible. The National Park Service considers several scenic views to be important to the visitor experience and worthy of protection. Aesthetics is an important component that contributes to visual or scenic quality and the sense of solitude prized by many park visitors.

Noise levels are an important component that contributes to the overall sense of scenic quality and the sense of solitude prized by many park visitors. Some human-caused noises that have been

identified in the study area are low-flying aircraft and diesel engines associated with oil and gas pumpjacks.

A central element of the study area is its relation to the Elkhorn Ranch Unit of the park. Views from the ranch into the study area are marked by the river snaking through cottonwood dominated bottomlands, cultivated benches, sparsely vegetated rolling hills, rounded buttes, and craggy badland formations. Figure 6 is an analysis of the views from the Elkhorn Ranch Unit.

A mixed-grass prairie ecosystem with woody draws and juniper-covered badlands comprises the general vegetative character. Some of the river bottomland is in cottonwood forest.

The Eberts and Mosser properties (and associated parcels) are a continuation of the Elkhorn Ranch Unit landscape. The properties are located directly across the Little Missouri River (east of the Elkhorn Ranch Unit) and are described in written passages penned by Roosevelt, such as the following: "[From Elkhorn Ranch] one looks across sand bars… to a strip of meadow land, behind which rises a line of sheer cliffs and grassy plateaus." He continues to describe gazing at "weird looking buttes… until their sharp outlines grow indistinct and purple in the afterglow of the sunset" (NPS 2001).

The SHSND lands are located on the Little Missouri River, north and south of the Elkhorn Ranch Unit and were part of Theodore Roosevelt's Elkhorn Ranch. While not as expansive or varied as the Eberts property, the SHSND lands represent a riparian environment on the edge of the Little Missouri River and are a natural extension of the Elkhorn Ranch Unit. Good views of the rugged topography of the Eberts and Mosser parcels can be obtained from the SHSND lands. There are no pumpjacks on the SHSND lands; however, one pumpjack can be seen in broad profile from the SHSND parcels.

LAND USE AND RECREATIONAL OPPORTUNITIES

Recreational Opportunities

Theodore Roosevelt National Park visitation numbers were 454,698 in 1998, 437,889 in 1999, and 438,391 in 2000. June, July, and August are the busiest months.

FIGURE 6. Viewshed Analysis: Elkhorn Ranch Unit of Theodore Roosevelt National Park

A 1990 study of the impact of external development on the economic and aesthetic values of the park included interviews of park visitors. Most visitors visit in family units (78 percent), while a minority visit the park alone or with a tour group. Generally, Theodore Roosevelt National Park is not the primary destination of visitors. It is usually one of a number of destinations. Seventy-nine percent of visitors spend their time in the South Unit while 50 percent visit the North Unit. Less than 8 percent of visitors visit the Elkhorn Ranch Unit, but 25 percent spend time in the wilderness areas (Wallace, Reed, and Mckean 1990).

Viewing wildlife and scenic vistas are the most common visitor activities in the park. Other popular activities include visiting the museum, horseback riding, camping, and participating in interpretive programs. Visitors to Theodore Roosevelt National Park may also travel to several other attractions nearby, including Medora, Lake Sakakawea, Fort Union Trading Post National Historic Site, and Knife River Indian Villages National Historic Site (Wallace, Reed, and Mckean 1990).

Information and interpretation is a critical aspect of visitor experience and understanding. At Theodore Roosevelt National Park, information and interpretation is provided at information desks, with exhibits in the visitor center and through diverse ranger-led programs. Currently, interpretation at the park focuses on five main themes: the manner in which cattle ranching and the "strenuous life" influenced Theodore Roosevelt's conservation ethic; the unusual geologic formations and biological communities of the Little Missouri River Badlands, the diversity of the local ecosystem, prehistoric, and historic occupation of the area and how cultures interact with the landscape; and the stress human activities have put on the region.

The Little Missouri National Grassland (managed by the USFS), which borders all units of the park, is the largest national grassland in the country. It contains rugged badlands topography, which attracts tourists. The river provides scenic canoeing opportunities in the spring when water flows are sufficient. In the winter, snowmobiling occurs on and along the river. The Little Missouri Badlands offers the only bighorn sheep hunting in the state. In addition to hunting, popular activities include viewing scenery, camping, hiking, and horseback riding. Camping is spread across the national grassland, which has eight developed campgrounds and one picnic ground. Large, remote, unroaded tracts can still be found on the Little Missouri National Grassland, although oil and gas exploration has resulted in many roads advancing into previously unroaded areas over the past 25 years. The grassland experienced on average about 95,900 recreation visitor days each year between 1992–1996 (USFS 2001).

The 96-mile Maah Daah Hey Trail is a multi-use recreational trail that traverses the Little Missouri National Grassland and the South and North Units. There is a small campground along this trail just outside the Elkhorn Ranch Unit of the park. The trail is becoming more popular every year. It provides views of highly dissected badlands surrounded by large expanses of gently rolling prairie, and crosses prime habitat of a variety of mammals and birds. Other shorter national grassland trails include the Summit (4.5-miles long), the Long X (8.5-miles long), Buffalo Gap (a bike bypass trail around the South Unit of the park), and the Little Missouri Snowmobile (22-miles long).

In the park there are opportunities for limited-mobility visitors to use most visitor use facilities, including all visitor buildings, restrooms, campgrounds, a few trails, and some scenic viewpoints along the park roads. Backcountry trails in the park are not universally accessible.

Hunting

Areas surrounding the park, including the study area, attract hunters. Hunting categories (big game, upland game, small game, and waterfowl), added together, are the most common recreational use of the national grassland (USFS 2001). Hunting is also permitted on state and private lands in the study area. Hunting is the only non-ranch/farming or mineral oriented use on the private land in the study area.

Grazing

The Eberts graze cattle on their property and the associated USFS allotment (for which they have a permit for A 467-animal unit month [AUM]). Grazing has both biological and cultural significance in the area. The native grasses have evolved with grazing animals and need to be subjected to this activity to ensure the vegetation's health. Historically, the region is linked with the open range grazing tradition that Theodore Roosevelt employed while ranching in the area. Currently the Medora Grazing Association administers grazing permits in the region. The establishment, costs, and granting of AUM permits is covered in the socioeconomics section of this EA.

Oil and Gas Management

Oil and gas development is an important component of the regional economy. There are six active wells in the study area and hundreds more in the surrounding region. This topic is discussed further under "Socioeconomic Resources," below, and also under "Nonfederal Oil and Gas Management." Refer to appendix E for more detail.

Agriculture

On the Eberts Ranch, 428 acres of bottomland and benchlands are cultivated in oats, hay, and alfalfa. This is used as livestock feed on the ranch. There are no other lands in cultivation within the park or study area.

PARK OPERATIONS

This section summarizes the personnel and major equipment resources of Theodore Roosevelt National Park and the study area. The study area is included in this discussion to provide perspective for resources needed under the alternatives.

Theodore Roosevelt National Park

The park budget for Fiscal Year (FY) 2001 was $1,865,300 (net), and in FY 2001, the park had 38.8 full-time equivalent employees. This included permanent full-time, part-time, seasonal, intermittent, and intern staff. The park also has a volunteer staff to assist with operations and visitor services. Personnel resources are distributed among resource management, maintenance, visitor and resource protection, administration, and interpretation staffing.

Park operational facilities are concentrated in the headquarters/visitor center areas at the entrance of the South and North Units of the park. There are 69 buildings in the park, including headquarters, resource management, visitor protection, maintenance and operations facilities, residences, and visitor services and comfort. The park has major equipment such as trucks, trailers, and construction equipment to support park operations.

The Elkhorn Ranch Unit is undeveloped and is monitored via a random onsite visit by park personnel about once a week.

When invited, park personnel take part in search and rescue, fire suppression, and law enforcement activities in the surrounding area. Some of these activities are facilitated through a cooperative agreement with the county sheriff.

Study Area

The Eberts Ranch has two residences, a trailer/bunkhouse, barns, outbuildings and storage sheds, and fencing. The ranch has approximately ten miles of improved and unimproved roads. Utilities systems, including electricity, septic, and well water service the ranch.

The SHSND land has one mile of improved gravel road traversing the property and no built structures. Existing utilities on or traversing the property are not known.

There is an old schoolhouse on the Mosser property that is occasionally used by the landowner. Approximately one mile of improved gravel road crosses the property. Existing utilities on or traversing the property is not known.

There are three river fords within the study area that have been used from time to time when water levels permit. These fords have been used by local ranchers, oil and gas operators, recreational users, and other members of the public.

Access

There are limitations on some park operations in and near the study area and Elkhorn Ranch Unit. Due to the remoteness of the area, FM radio reception is poor to non-existent and emergency

vehicle access can be difficult along the miles of unpaved roads leading to and across the study area, depending upon weather and other conditions.

NONFEDERAL OIL AND GAS DEVELOPMENT

Oil and gas development in the region adjacent to the Elkhorn Ranch Unit has drastically changed the scene since the energy development boom began in the extensive Williston Basin in the early 1970s (NPS 1987). Table 4 lists all oil and gas wells in the study area (including producing, abandoned, and saltwater injection wells) and summarizes production numbers from Calendar Year 2001 and cumulative data for the life of the well. Figure 7 shows the locations of inactive and active wells in the study area. Subsurface mineral leases in the study area are predominantly privately owned; however, some scattered mineral leases on the Eberts and Mosser parcels are federally owned.

One well (site number 9-1) listed as active by the state of North Dakota, is in the process of being plugged and abandoned. The National Park Service has learned that production from this well ceased in March 2001, and as of May 2002, the site had yet to be reclaimed. Six companies own the remaining six wells listed as active by the state.

Most wells in the Eberts area are drilled into the Bakken (primarily gas) or the Madison formations. The Bakken formation is approximately 10,400 feet below ground, and sits below the Madison formation. Future oil and gas production possibilities in the vicinity of the Eberts property are unknown. State production records indicate an average cumulative production of 42 barrels of oil per day from the five wells (ND Petroleum Council 2002). Currently, the horizontally drilled wells in the Madison formation are still producing, while the oil and gas wells in the Bakken formation are nearly depleted (see appendix D). There may be potential for drilling companies to re-enter the Bakken wells from the same drill pad, plugging the Bakken well and raising it to the Madison formation as a horizontal well. There does not appear to be any current interest in deeper gas wells in this area, such as those of the Red River formation.

In addition to the five active oil and gas wells, two saltwater injection wells are in use on the Eberts property. Saltwater injection wells are used to reinject the brine (saltwater) that is typically brought to the surface with oil and gas production activities. Saltwater injection wells are used to inject brine (produced formation waters) into the subsurface so that it does not contaminate surface resources such as soils and vegetation. Saltwater injection can also enhance production of oil and gas from these formations, thus secondary recovery of oil and gas depends heavily on injection. One major oil and gas transmission line and some smaller connection lines are also present on the Eberts property.

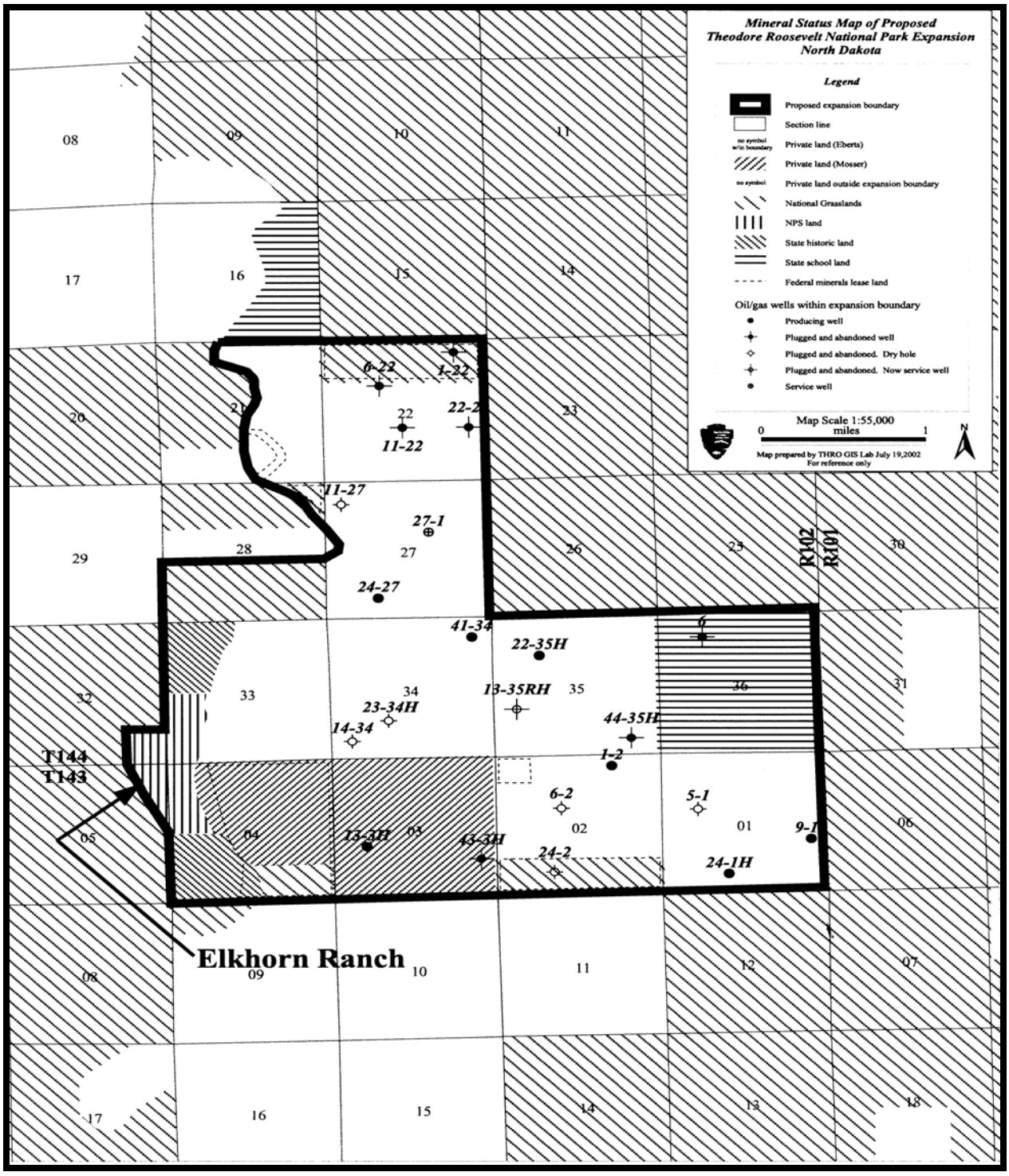


FIGURE 7. Mineral Status of the Properties Identified for Inclusion in the Theodore Roosevelt National Park Boundary Expansion

TABLE 4. OIL AND GAS WELLS IN THE STUDY AREA

Location	Site #	State #	Status	Completion Date	Formation	Cumulative Oil Barrels	2001 Total Barrels Oil	Average Barrels/Day [1]	2001 CF (gas)	Daily CF
Active oil and gas wells within the study area										
SE SW 27-144-102	24-27	12886	P	11-08-90	Bakken	245,665	3,230	8.8	79,349	217.4
NE NE 34-144-102	41-34	12372	P	05-18-88	Madison	110,089	4,723	13.8	3,410	10.0
SE NW 35-144-102	22-35H	12605	P	07-19-89	Madison	120,710	7,195	20.7	1,146	3.3
SE SW 01-143-102	24-1H	12630	P	08-09-89	Bakken	127,614	2,625	8.0	4,860	14.8
NE SE 01-143-102	9-1	5711	PNA[2]	03-19-76	Madison	130,229	344	11.8	183	6.3
NW NE 02-143-102	1-2	13219	P	10-06-91	Bakken	35,540	2,015	5.7	78,934	222.3
NW SW 03-143-102	13-3H	12736	P	02-17-95	Madison	36,559	3,755	10.7	6,445	18.2
WELLS WITHIN THE EXPANSION AREA THAT ARE NO LONGER IN OIL AND GAS PRODUCTION						**Completion Date**	**Plugged Date**			**Daily Barrels when closed**
NE SW 22-144-102	11-22	9902	Plugged & abandoned			02-28-83	11-20-91			8.6
SE NW 22-144-102	6-22	9271	Plugged & abandoned			05-24-82	05-26-94			12.0
NE NE 22-144-102	1-22	7567	Plugged & abandoned			10-06-80	08-12-98			13.8
NE SE 22-144-102	22-2	8291	Plugged & abandoned			04-03-81	03-09-94			12.9
SW-NE 27-144-102	27-1	8037	Dry Hole, now salt water disposal			11-08-81	Became disposal well on 02-05-82			0.2
NW-NW 27-144-102	11-27	12434	Dry Hole. Plugged & abandoned			n/a	07-10-88			
SE SW 34-144-102	23-34H	12246	Dry Hole. Plugged & abandoned			n/a	11-07-87			
SW SW 34-144-102	14-34	10212	Dry Hole. Plugged & abandoned			n/a	06-26-83			
NW SW 35-144-102	13-35RH	12932	Producer, now salt water disposal			07-20-90	Became disposal well on 05-14-98			7.7
SE SE 35-144-102	44-35H	11877	Plugged & abandoned			11-14-89	11-23-97			8.0
NE NW 36-144-102	State #6	12891	Plugged & abandoned			06-16-90	08-28-97			2.2
SW NW 1-143-102	5-1	7399	Dry Hole. Plugged & abandoned			n/a	01-28-80			
SE NW 2-143-102	6-2	7761	Dry Hole. Plugged & abandoned			n/a	08-05-80			
SE SW 2-143-102	24-2	12150	Dry Hole. Plugged & abandoned			n/a	08-18-87			
SE SE 3-143-102	43-3H	12632	Plugged & abandoned.			06-12-89	08-19-95			6.2

[1] Average is based on the actual days of production, not divided by 365 days per year.
[2] Production stopped March 2001after producing for a total of 22 days. By May 2002 the pump jack and sucker rod had been removed from hole.

Under current North Dakota regulations, processing time for new operations is approximately two weeks, on average. Currently, the state requires a $15,000 liability bond for one well, or $50,000 for up to ten wells, and a $15,000 plugging and reclamation bond. The state of North Dakota requires a clay cap on wellpads, particularly under the storage tank, and containerized drilling (e.g., closed-loop drilling as opposed to storage of drill mud in open pits or other facilities) if a well is being sited near a river, wetland, or floodplain. The state also requires a secondary containment berm that holds at least the volume of the largest tank, plus one day's worth of pumping. More information regarding oil and gas development is provided in appendix E.

Limited public access is granted to the private lands in the study area, as well as to the state and federal lands, for hunting and recreational (e.g., snowmobiling) activities. Currently, the roads to the oil and gas wells are well maintained and fencing conditions are suitable (e.g., they are barbed-wired and signed in most instances). Nonetheless, oil and gas production activities on these lands present the greatest threat to public health and safety on these properties.

SOCIOECONOMIC RESOURCES

Regional Setting

Theodore Roosevelt National Park, located in western North Dakota, consists of three separate units: North, South, and Elkhorn Ranch. The park encompasses 110-square miles (approximately 70,447 acres). The South and Elkhorn Ranch Units are located in Billings County and the North Unit is in McKenzie County. The nearest town to the study area is Medora, outside the South Unit. The proposed boundary expansion lands are located in Billings County, approximately 35 miles north of Medora.

The USFS manages the Little Missouri National Grassland, which covers much of southern McKenzie County and western Billings County. The state of North Dakota administers Sully Creek Recreational Area near Medora and the State School Lands. In addition, the above agencies and others oversee many smaller parcels.

The Little Missouri River region has numerous recreational and educational facilities that are managed by various agencies. Museums, historical sites, and other attractions are provided by the state, nonprofit organizations, and the private sector.

Population

McKenzie County encompasses about 2,735-square miles, with a population of 5,737 in 2000. McKenzie County's population decreased by 10.1 percent from 1990 to 2000. Watford City is the county seat and home to approximately 25 percent of county residents. Billings County's 2000

population was 888, a 19.9 percent decrease from 1990. Medora, the Billings County seat, has a population of 100 individuals (U.S. Census Bureau 2001).

Economic Conditions

Full- and part-time employment totaled 3,800 and 803 jobs in McKenzie and Billings Counties, respectively, in 1999. This is a marked reduction from 1979 employment totals. Table 5 illustrates changes in employment over the past 20 years.

TABLE 5. TOTAL COUNTY EMPLOYMENT, 1979 TO 1999

Year	Billings County	McKenzie County
1979	1,134	4,805
1989	823	3,364
1999	803	3,800
Percent change	–29	–21

Source: U.S. Department of Commerce, Bureau of Economic Analysis, May 2001.

Unemployment in the region in 1999 was 4.4 percent in McKenzie County, and 5 percent in Billings County. These figures compare to the statewide figure of 3.4 percent for North Dakota (U.S. Census Bureau 2001).

Agriculture accounts for 24.1 percent of employment in McKenzie County. Mining and petroleum are the leading industries in the county, accounting for 57.5 percent of employment. The government employs 12.1 percent of the county work force. Services and trade are other significant employers in the county (McKenzie County 2000).

Agricultural professions account for approximately 37 percent of employment in Billings County. Mining, manufacturing, trade, services, and the government are the principal non-farm employers, with government agencies employing 128 individuals in 1999 (U.S. Department of Commerce 2001).

The livestock industry is an important component of agricultural activity in McKenzie and Billings Counties. According to the *Northern Great Plains Management Plan* produced by the USFS, cattle are by far the most prevalent type of livestock grazed on National Forest System lands on the northern Great Plains. Rangeland forage is a major food source for cattle and sheep. Livestock production from USFS lands on the northern Great Plains is very important to the people who hold grazing permits (USFS 2001).

In the area surrounding the park, the Medora Grazing Association has a comprehensive grazing permit with the USFS. The grazing association, in turn, issues permits to various individual

ranchers for specific parcels. Fees are charged per AUM. The costs are passed from the Medora Grazing Association to the individual permittees. In 2001, the federal government charged $1.35 per AUM and the grazing association added $0.92. Therefore, a rancher paid $2.37 per AUM. After the grazing association collects its fees, 67.5 cents of the total goes to the federal treasury. The 20-year permitted AUM levels (average) in the entire Little Missouri National Grassland are 315,900 (USFS 2001). The Eberts have a permit for 467 AUM on their allotment. They graze cattle on the allotment eight months a year and therefore have an annual grazing fee of $8,854.32 (467 AUMs x 8 months x $2.37 per AUM).

Oil and gas production in North Dakota ranks ninth in the nation. In 1998, leading North Dakota counties in production were Bowman, Billings, McKenzie, and Williams, with most production occurring on USFS lands in Billings and McKenzie Counties. Currently there are approximately 600 federally permitted wells in the Little Missouri National Grassland, including producing oil and gas wells, saltwater injection wells (used for reinjecting produced formation waters into subsurface formations), and shut-in wells (completed, but not producing). A well may be shut-in for tests, repairs, to await construction of gathering lines, or better economic conditions. Plugged and abandoned wells are not included in this count. There are approximately 100 additional wells on lands where there is federal surface ownership and nonfederal minerals (USFS 2001). The study area contains six active wells.

The vitality of the oil and gas industry in the Dakota grasslands is evident in the fact that the region accounts for 27 percent of state oil production and employs nearly 1,000 individuals. The industry also contributes approximately $15 million per year in tax revenue (North Dakota Petroleum Council 2002). About one-fourth of the tax revenue is returned to McKenzie, Billings, Golden Valley, and Slope Counties for schools and roads. USFS- and Bureau of Land Management (BLM)-administered public land in the Little Missouri provided an additional $4.5 million, with half of that returned to the state of North Dakota (USFS 2001). Oil and gas management activities within this basin have a direct and immediate effect on the regional oil and gas industry

Personal Income

From 1969 to 1999, total annual personal income growth was well below the national and state averages: 5.7 percent in McKenzie County and 4.9 percent in Billings County. This compares to 7.1 percent for the state and 8.0 percent for the United States. Below average personal income growth is compounded by local poverty levels that are above the national average. Personal income figures for 1989 and 1999 are presented in table 6 (U.S. Department of Commerce 2001).

TABLE 6. PERSONAL INCOME*

	1989	1999
McKenzie County	$ 78,107,000	$ 110,573,000
Billings County	$ 12,221,000	$ 15,101,000
North Dakota	$ 9,279,703,000	$ 14,747,353,000

*The data in this table represents the combined personal income of all residents in each of the counties listed.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, May 2001.

According to the U.S. Census Bureau, 11.9 percent of the nation's population lived in poverty in 1998. The same year, North Dakota's poverty level was slightly above the national average (12.7 percent). The poverty level in McKenzie and Billings Counties was above the national and state averages at 16 percent and 20.8 percent, respectively (Dalaker 2001).

Per capita personal incomes in the region lag far behind state and national averages. Per capita personal income (1999) averaged $19,955 in McKenzie County and $14,166 in Billings County. This compares to a national average of $28,546 (table 7).

TABLE 7. PER CAPITA PERSONAL INCOME

Geographic Area	1989	1999	Percent of 1999 U.S.
United States	$18,566	$28,546	100.0
North Dakota – Statewide	$14,357	$23,273	77.3
McKenzie County	$10,544	$19,955	63.4
Billings County	$11,770	$14,166	56.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis, May 2001.

Baseline Socioeconomic Factors Related to Theodore Roosevelt National Park

Visitors to Theodore Roosevelt National Park, park staff, and their families contribute to the region's economic and social structure. Some key dimensions of the park's role in the region are described below.

Staffing at Theodore Roosevelt National Park has risen over time as visitation has increased and visitor facilities, trails, and other improvements have been planned and completed. The fiscal year 2001 employment was 38.8 full-time equivalent employees. In addition, researchers and volunteers supplement park staff. It is estimated that for every ten NPS employees, an additional job is created in the community from the employee spending his or her pay. When students' parents are employed on federal lands, Federal Lands Impact Aid (funding) is sent directly from the federal government to affected school districts.

Another measure of Theodore Roosevelt National Park's economic role is the stimulus provided by ongoing operating and capital expenditures. The budget for FY 2001 was $1,865,300 (net). The largest share of the Theodore Roosevelt National Park annual operating budget is salaries, wages, and benefits paid to park staff. The remainder is allocated for facility and vehicle maintenance, utilities, miscellaneous supplies, travel, and the like. Substantial portions of park annual expenditures circulate through the regional economy in the form of consumer and business purchases, yielding indirect economic impacts. Monies are also distributed to various construction contactors (both locally and regionally) for occasional rehabilitation projects such as road work and improvements to structures and campgrounds.

Under current law, federal agencies must compensate local governments for the losses to their tax base that federal ownership implies. The most common compensation program is known as Payments in Lieu of Taxes, or PILT. Payments are calculated following a complex formula that takes into account the population of the county, change in the Consumer Price Index, previous payments under other compensation programs, and state pass-through laws (requiring payments to pass from counties to local communities rather than staying with the county government). Recent PILT payments from federal agencies to McKenzie and Billings Counties were $824,532 in 2001. Payments from the National Park Service accounted for $64,617 of this total (BLM 2001).

In addition to the direct stimulus attributable to the park, spending by visitors to Theodore Roosevelt National Park contributes to the local economy. Trends in visitation are generally influenced by regional travel trends, gas prices, demographics, and the like.

ENVIRONMENTAL CONSEQUENCES

NEPA mandates that EAs disclose the environmental impacts of a proposed federal action. In this case, the proposed federal action is implementation of the preferred alternative of this boundary study and EA. This section analyzes the potential effects of the management alternatives on cultural resources, natural resources, socioeconomic resources, visitor experience and understanding, and park operations.

The first part of this section discusses policy and terminology related to cumulative impacts and impairment of park resources. The next section discusses methods the planning team used to identify impacts and includes definitions of terms. The alternatives are then analyzed in the order they appear in the "Alternatives for Boundary Expansion" section. Each impact topic includes a description of the beneficial (positive) and the adverse (negative) effects of the alternatives, a discussion of cumulative effects, and a conclusion.

CUMULATIVE IMPACTS

CEQ regulations, which implement NEPA, require assessment of cumulative impacts in the decision making process for federal actions. Cumulative impacts are defined as:

> The impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

Cumulative impacts are considered for both the no-action and action alternatives. To determine potential cumulative impacts, the planning team considered past actions by the National Park Service and others, and consulted neighboring agencies and governments. Development and industrial activities that have occurred in the recent past, are now underway, or would be implemented in the reasonably foreseeable future were included.

These projects or actions were evaluated in combination with the impacts of each boundary expansion alternative to determine if any cumulative effects on cultural resources, natural resources, visual resources, land use and recreational opportunities, park operations, nonfederal oil and gas management, socioeconomic resources, and visitor experience would be expected. Because most of the cumulative actions are minor, evaluation of cumulative impacts was based on a general description of projects or actions.

The following are considered reasonably foreseeable future actions in the cumulative impact scenario:

- Standards and guidelines outlined in the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) that are designed to reduce impacts from grazing and oil and gas production.

- Improvement of Blacktail Road (Forest Highway 2), East River Road (USFS #702), County Road 11, and USFS #708 by Billings and Golden Valley Counties, to include: widening, drainage improvements, and conversion from some scoria sections to a gravel surface.

- Additional conversion of area cattle ranches for guest ranch purposes, or subdivision into "ranchettes."

IMPAIRMENT OF NATIONAL PARK RESOURCES

National Park Service policy (*Management Policies* 2001 and DO−12) requires analysis of potential effects to determine whether or not alternatives or actions would impair park resources. NPS managers must seek ways to avoid, or minimize to the greatest degree practicable, adversely impacting park resources and values. However, laws do give NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it has a major or severe, adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of the park,
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, and
- identified as a goal in the park's GMP or other relevant NPS planning documents.

A determination on impairment is made in the “Conclusion” section of each relevant impact topic.

METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

This section presents the methods used to conduct environmental impact analyses. Impacts are described in terms of type (are the effects beneficial or adverse?), context (are the effects site-specific, local, or regional?), duration (are the effects short or long term?), and intensity (are the effects negligible, minor, moderate, or major?). The thresholds of change for the intensity of an impact are defined as follows:

Negligible: The impact is at the lower levels of detection

Minor: The impact is slight, but detectable

Moderate: The impact is readily apparent

Major: The impact is severely adverse or exceptionally beneficial

The impact analyses for the no-action alternative compares resource conditions of the study area, if the parcels are not included within the boundary expansion, to existing conditions today. It is not possible to predict how the parcels would be managed if they do not become part of the park, so best case and worst case scenarios are considered, as appropriate, in the impact analysis. The impact analysis for the action alternative (alternative B) compares conditions of the study area, if included in the boundary expansion and acquired by the park, with the no-action alternative. To understand the consequences of either action alternative, the reader must also consider what could happen if the parcels were not added to the park.

All available information on impact topics was compiled from existing planning documents, research reports, surveys, and consultation with park resource specialists. When determining impacts to nonfederal oil and gas development, the following considerations were made:

- Would there be cost increases for mineral development, and if so, how much?
- Would there be increased technical risk associated with mineral development, and if so how much?
- Would there be an increase in development complexity compared to industry practices commonly used in areas with similar environmental conditions?
- Would project economics approach a point where a reasonable and prudent operator would give higher priority to oil and gas properties on other properties?
- Would lease terms have to be adjusted?

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts on Cultural Resources

The Eberts and Mosser properties would likely remain in private ownership under this alternative. There are no known historic properties (as defined by 36 CFR 800) on the private lands. The Annear Schoolhouse is a cultural resource (as defined by NPS DO-28, *Cultural Resource Management*) and there are likely other cultural resources such as lithic scatters, tipi rings, eagle traps, and materials associated with ranching. However, results from surveys in the surrounding area do not indicate a high density of archaeological resources. Except for the schoolhouse, these resources are not identified or actively managed, therefore, the opportunity for discovery, interpretation, and research is curtailed. Unknown cultural resources are also subject to gradual deterioration from environmental factors (weathering) and other indirect threats. The impact on

cultural resources in the no-action alternative is directly linked to management decisions made by future landowners.

If the Eberts property were not sold to the National Park Service, the impacts could range from no impact to long term, adverse, and negligible, depending on level of development by the new owner. In the best case, management as some type of ranch would continue and the new owners would try not to disturb cultural resources that may be identified on the property. The only impact would be negligible and adverse from indirect threats (e.g., weathering). In the worst case, the property would be developed into a guest ranch or subdivided into "ranchettes" and cultural resources might be inadvertently destroyed in the process (through land clearing, road building, construction, etc.).

Under this alternative, management of the SHSND tracts would not change, so there would be no impact to cultural resources. There would be no impact to cultural resources in the no-action alternative.

The Annear Schoolhouse, located on the Mosser parcels, is possibly an important historic structure. Under the no-action alternative, this building would most likely not be evaluated for NRHP eligibility. The current owners of the building have stabilized it by applying paint regularly and keeping the roof in good condition. Under the no-action alternative this would probably continue and constitute no impact.

Other (unknown) archaeological sites may exist in the study area. They are not currently actively managed or documented, which means there is no opportunity to study, interpret, or protect them from gradual deterioration from natural processes and other factors. If the lands are not added to the park, management of these cultural resources would not change, so negligible impacts from natural processes and inadvertent threats would continue.

Cumulative Impacts. Cultural resources in the study area are subject to damage from a variety of natural events and human activities. Ranching and mineral production operations, construction, recreational activities (including ATV use), and natural processes (e.g., erosion) in the surrounding area can result in gradual deterioration or inadvertent damage to cultural resources. Reasonably foreseeable future activities, including improvements to roads in the study area and other development, could threaten cultural resources further. Cumulative impacts would be minor to moderate, adverse, and long term, depending on the resource and scope, location, and level of development.

Conclusion. With no change in land ownership or management, impacts to cultural resources would remain unchanged ranging from no impact to long term, adverse, and negligible. Unknown cultural resources may exist in the study area and are subject to deterioration and inadvertent damage. Cultural resources would potentially be adversely impacted if the Eberts property was developed, but impacts would be negligible. Potential cumulative impacts would be minor to moderate, adverse, and long term, depending on the resource and scope, location, and type of activity. There would be no impairment of cultural resources under this alternative.

Impacts on Biological Communities

Under the no-action alternative, current adverse, minor to moderate impacts to biological communities would be expected to continue. Long-term, minor, adverse impacts on native vegetation and wildlife habitat would result from continued grazing, cultivation of croplands, building new oil and gas production wells, and associated access roads and operating equipment. Limited protection of wetlands, riparian areas, and other sensitive vegetation communities and wildlife habitat from adverse impacts of oil and gas activities on private lands would be expected to continue. Short- and long-term, minor to moderate, adverse impacts to vegetation and wildlife habitat would be expected to continue during oil and gas facility construction and throughout the active life of the oil or gas well.

Some overgrazing would be expected to continue, adversely affecting the mixed-grass prairie community, especially woody draws, and riparian areas and the wildlife they support. Overgrazing can lead to the establishment of exotic species, which alter the vegetation composition of the habitat, ultimately out-competing native species in many cases. This would result in long-term, minor, adverse impacts to vegetation and wildlife habitat.

Currently, fire is suppressed on the private, state, and USFS lands, with prescribed burning restricted to less than 2,000 acres per year in the entire 1.1-million acre Little Missouri National Grassland. Fire suppression, coupled with lands that are not rested from grazing or crop production, also adversely affects the health of the mixed-grass prairie. These natural ecological processes are essential to the health of a prairie ecosystem and when they are absent, species composition can change. This would be expected to have long-term, minor, adverse impacts as long as these activities (fire suppression, overuse, and lack of rest) continue.

Cumulative Impacts. Oil and gas production, as well as grazing, occurs throughout the lands surrounding the study area. Oil and gas production activities result in long-term disturbances to biological communities. Improvements to area roads (e.g., widening, improved drainage, gravel surfaces) would also result in some negligible to minor impacts on biological communities. The USFS is attempting to implement standards and guidelines that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands, which includes the Little Missouri National Grassland. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals and objectives for protecting riparian, wetland, prairie, forest, and fish and wildlife resources, as well as threatened, endangered, or rare species. In all, cumulative impacts to biological communities that would result under alternative A are anticipated to be long term, minor, and adverse.

Conclusion. Under the no-action alternative, adverse impacts to biological communities are expected to continue. The adverse impacts resulting from oil and gas production activities, fire management, and ranching (grazing) practices ongoing within the study area would be both short and long term and range from minor to moderate. Cumulative impacts of oil and gas production,

grazing, and other development concepts would be long term, minor, and adverse for biological communities. There would be no impairment of biological communities under this alternative.

Impacts on Threatened and Endangered Species

Under alternative A, threatened, endangered, and rare species or natural communities on private lands within the study area would not be afforded protection. Grazing operations, oil and gas production, and/or other development that may occur if these lands are not included in the boundary expansion could have minor to moderate, long-term, adverse impacts on threatened and endangered species or rare species/natural communities.

Cumulative Impacts. The USFS is attempting to implement standards and guidelines that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals and objectives for protecting threatened, endangered, or rare species. Despite these efforts, cumulative impacts to threatened, endangered, and/or rare species, and rare natural communities, are anticipated to be long term, minor, and adverse.

Conclusion. Under the no-action alternative, threatened, endangered, and/or rare species, as well as rare natural communities, would not be afforded protection on private lands. Depending on the use of this property (e.g., grazing, oil and gas production, other development), long-term, minor to moderate, adverse impacts would be anticipated. Although the USFS is attempting to protect these species and communities on their lands, the cumulative impact would continue to be long term, minor, and adverse. There would be no impairment of threatened, endangered, and/or rare species under this alternative.

Impacts on Water Resources

Under alternative A, negligible adverse impacts to water resources would be expected to continue. Pesticides and fertilizers would continue to be applied to croplands and for exotic species control in the study area. If not used properly, these chemicals could be carried to surface and groundwater resources. Oil and gas production activities would continue to exacerbate surface and groundwater quality concerns as well. On private lands, siting of oil wellpads may continue in sensitive riparian areas, creating the potential for adverse impacts to surface and groundwater quality from erosion, oil leaks, spills, and equipment malfunctions. Limited secondary containment provisions would not likely contain the largest possible accidental spill. Pesticide application and accidental spills would be expected to have negligible to minor, long-term, adverse impacts on water quality. If development were to occur in the floodplain of the Little Missouri River, minor adverse impacts would be anticipated, but these could be mitigated by proper flood-proofing of structures.

The Eberts' water rights would continue to be used for irrigating cultivated cropland or other approved purposes, having a long-term, minor, adverse impact on the quantity of water flowing in the Little Missouri River basin below the Eberts' property, including the North Unit of Theodore Roosevelt National Park.

Cumulative Impacts. Oil and gas wells are concentrated in and around the study area and may result in adverse impacts to surface water quality. However, the USFS is attempting to implement standards and guidelines that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals and objectives for protecting surface water quality. In addition, the Little Missouri State Scenic River Act provides protection for the Little Missouri floodplain by prohibiting dams and dredging. Cumulative impacts anticipated under alternative A would be long term, negligible, and adverse. Several other existing water rights on the Little Missouri River and tributaries are used for irrigating croplands and filling stock ponds for cattle. Withdrawal of surface water as per these waters rights would have cumulative, long-term, negligible, adverse impacts on water quantity available in the Little Missouri River basin.

Conclusion. Negligible to minor, adverse impacts to ground and surface waters are anticipated to continue under this alternative. These impacts are associated with pesticide applications near the Little Missouri River and within aquifer recharge zones, as well as with oil and gas production activities located throughout the study area. Cumulative impacts would be somewhat mitigated by guidelines and standards promulgated by the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* and the Little Missouri State Scenic River Act; however, they are anticipated to be long term, negligible, and adverse. There would be no impairment of water resources under this alternative.

Impacts on Soils

Under the no-action alternative, some overgrazing would be likely to continue, resulting in soil compaction, rutting, loss of soil productivity, and increased erosion during stormwater runoff. Impacts from new oil and gas operations (including operation and storage of construction and drilling equipment, development of new access roads and wellpads, and the like), could include direct impacts such as compaction and rutting, loss of soil productivity, and increased erosion, as well as indirect impacts such as soil contamination from leaks or spills during drilling and production operations. New impacts from grazing and oil and gas operations would be long term, adverse, and minor in intensity.

Cumulative Impacts. Road widening in the study area could have negligible to minor impacts on soils. New oil and gas exploration and production activities on lands surrounding the study area are expected to have similar impacts to those described above. On the other hand, the USFS is working to implement standards and guidelines that would reduce impacts from grazing and oil and gas production throughout the grasslands. The *Land and Resource Management Plan for the*

Dakota Prairie Grasslands Northern Region (2001) establishes goals and objectives aimed at protecting vegetation and associated resources such as soils. In all, the cumulative effect on soils would be long term, adverse, and minor.

Conclusion. Under the no-action alternative, long-term, adverse, minor impacts to soils from grazing and from existing and new oil and gas production activities would be expected. Cumulative impacts would also be long-term, minor, and adverse. There would be no impairment of soils under this alternative.

Impacts on Air Quality

No new impacts to air quality are anticipated under Alternative A. The primary sources of air pollution that would continue include dust generated from oil and gas drilling and production operations, use of existing park roads, wind generated dust, flaring of natural gas at oil and gas wells, and releases of hydrogen sulfide gas from oil and gas wells. Short-term, intermittent, negligible, adverse impacts on air quality would occur from flaring natural gas and from suspended particulate matter.

Cumulative Impacts. The USFS has outlined some standards in the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) that require compliance with federal and state air quality protection regulations. However, these standards could not influence wind blown dust as a source of particulate matter air pollution, so cumulative impacts to air quality would be short term, negligible, and adverse under this alternative.

Conclusion. New impacts to air quality would not be anticipated under alternative A, as oil and gas drilling and production operations and wind blown dust would likely continue as the primary sources of air pollution. This would have short-term, negligible, adverse impacts on air quality. Cumulative impacts from wind blown dust would be expected to continue, as this would not be controlled by standards promulgated by the USFS. Therefore, impacts are expected to be intermittent, short term, negligible, and adverse under this alternative. There would be no impairment of air quality under this alternative.

Impacts on Visual Resources and Noise

Under alternative A, the National Park Service would not acquire any of the lands in the study area. The Eberts property (and possibly Mosser parcels) might be sold to another individual or entity. Other federal, local, and state agencies have shown little interest or financial resources to acquire the properties. Impacts of the no-action alternative would be long term and could range from no impact to moderate adverse, depending on how the lands are developed and/or managed. If the land use continued as a cattle ranch, the Eberts and Mosser properties would appear visually similar to current conditions, which would constitute no impact. If the property were sold and converted to a guest ranch or "ranchettes," the landscape could change because more facilities (roads, utilities, etc.) would be needed to support such development. Scenic impacts from

development of this type would be long term, adverse, and minor to moderate in intensity, depending on the nature, location, and level of development.

The SHSND and State School Lands tracts would remain in state ownership and there would be no change in the management of the tracts and therefore no impact.

Oil and gas development would continue under current management practices, potentially further degrading the scenic quality associated with the Elkhorn Ranch Unit. The level of impact would depend on the level and location of oil and gas development. For example, the impact would be less if future pumpjacks were placed below ridgetops in narrow profile to the Elkhorn Ranch Unit as opposed to being placed on ridges in broad profile. Noise levels could vary depending on whether the companies use electric (quiet) or diesel engines. The impact from visual resources and noise from oil and gas development would be long term, adverse, and range from negligible to moderate.

Cumulative Impacts. There is a trend in the region in which ranches are being converted to guest ranches, "ranchettes," and the like. Such operations could negatively affect visual resources, particularly if development were placed on ridge lines in full view of the Elkhorn Ranch Unit. To date, this has not directly affected the natural landscape visible from the park. If the trend continues, however, development could ultimately intrude into the park's viewshed, compromising the largely undeveloped landscape currently visible from the park. Continued oil and gas development in the surrounding area could impact visual resources and contribute noise depending on the nature of development (depending on the level and location of development and types of engine technology used). Cumulative impacts would be adverse, long term, and negligible to minor.

Conclusion. Impacts of alternative A are contingent upon the ultimate land use fate of the lands and the associated management decisions. Long-range impacts in the study area could range from no impact to moderate adverse, depending on the above factors. Cumulative impacts would be long term, negligible to minor, and adverse. There would be no impairment of visual resources under this alternative.

Impacts on Land Use and Recreational Opportunities

Recreational Opportunities (including hunting). Current recreational opportunities within the existing Elkhorn Ranch Unit and on the adjacent national grassland would continue under alternative A. Interpretation and information about park resources would continue to be provided in a manner consistent with current and planned programs. Hunting would continue in the study area. Therefore, impacts on recreational opportunities are not anticipated under this alternative.

Land Use. If the nonpublic land in the study area were to remain in private hands and the public lands were to remain in USFS and state ownership, there would be no change in management or land use. Therefore, there would be no new impacts to land use.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on recreational opportunities and land use under alternative A

Conclusion. Impacts on land use by recreational users would not be anticipated if alternative A were implemented.

Impacts on Park Operations

Implementing the no-action alternative would result in no change and therefore no impact on park operations.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on operations or infrastructure under alternative A.

Conclusion. No impacts on park operations would result.

Impacts on Nonfederal Oil and Gas Development

Under alternative A, oil and gas operations on private lands would continue to be managed in accordance with state regulations and policies. The National Park Service would continue to work cooperatively with the USFS, BLM, and state of North Dakota to mitigate potential adverse impacts to park resources and values associated with oil and gas development on lands adjacent to Theodore Roosevelt National Park. These regulations and mitigation measures would allow for the continued production of oil and gas from existing wells and the drilling of new oil and gas wells, with long-term, negligible, adverse impacts on nonfederal oil and gas development.

Although limited public access is granted to the private lands in the study area (as well as to the state and federal lands) for hunting and recreational (e.g., snowmobiling) activities, oil and gas production activities present the greatest threat to public health and safety on these properties. Although the roads to the oil and gas wells are well maintained and fencing conditions are suitable (e.g., they are barbed-wired and signed in most instances) for keeping visitors away from the wellpads, threats to public health and safety exist if visitors accessed the drill pad. These threats include exposure to toxic gases (hydrogen sulfide) and injuries that could result from accidents with the mechanical operations of the wells. This would have long-term, minor, adverse impacts on public health and safety if visitors were able to access the wellpads.

Cumulative Impacts. The USFS has outlined new standards and guidelines in the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) related to geophysical (seismic) operations, oil and gas operations, and energy and mineral-related special uses on USFS lands adjacent to the Eberts property. If approved, these standards and guidelines would include: obtaining water for mineral operations from private sources (with exemptions);

prohibiting storage of equipment not in use; prohibiting new road construction for geophysical operations (unless alternatives have been assessed and determined to be more environmentally damaging); discouraging the use of open reserve pits for oil and gas operations (in cases where open pits are justified, analyze and monitor construction and use to minimize potential for leakage and structural failure); providing onsite and offsite information warning of the dangers of hydrogen sulfide; restricting development and reclamation activities within 0.25 miles of a developed recreation site between May 1 and December 1; minimizing disturbances by co-locating roads, pipelines, gathering lines, and power lines for energy resource development; and charging fees for surface uses when commercially produced water disposal wells are permitted. This would likely have a long-term, minor, adverse impact on nonfederal oil and gas development.

Conclusion. Under the no-action alternative, current management of oil and gas operations would continue in accordance with applicable federal, state, and local regulations and policies governing such activities. This would continue to have a negligible, long-term, adverse impact on nonfederal oil and gas development on the Eberts property. Cumulative impacts are anticipated from implementation of the USFS *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region*, which will set standards and guidelines for geophysical operations, oil and gas operations, and energy and mineral-related special uses on USFS lands. These are expected to have long-term, minor, adverse impacts on nonfederal oil and gas development.

Impacts on Socioeconomics

Under alternative A, limited beneficial effects on the economy from tourism, agriculture, and oil and gas development would continue. If the Eberts and Mosser lands were to remain private property, the tax revenue would continue to be distributed to Billings County. If the property was to continue to be used as a ranch, the Medora Grazing Association would still receive financial contributions from the grazing fees. This would have short- and long-term, negligible, beneficial effects on the local economy.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on socioeconomics under alternative A.

Conclusion. Effects associated with alternative A are short and long term, negligible, and beneficial or unchanged from current conditions.

IMPACTS OF ALTERNATIVE B

Impacts on Cultural Resources

Cultural resources in the study area would be afforded more protection (as per NPS and federal policy) than is currently the case, and there would be the opportunity for discovery of more cultural resources on the properties proposed for inclusion in the Theodore Roosevelt National Park boundary expansion as federally mandated surveys are conducted, which would allow for interpretation and research. The effect would be beneficial, long term, and minor to moderate, depending on the nature of the sites and their current condition.

The Annear Schoolhouse, located on the Mosser parcels, is a potentially important historic structure. Under alternative B, this building would be evaluated for NRHP eligibility and, if deemed eligible, protected. This would constitute a long-term, minor, beneficial effect.

Previously, the Elkhorn Ranch Unit of the park was considered too small to be nominated to the NRHP as a cultural landscape (district) as opposed to a site. However, incorporation of the study area into the park could allow the National Park Service to nominate a larger tract of land, including the Elkhorn Ranch, to the NRHP as a cultural landscape and afford it more protection. This would constitute a long-term, moderate, beneficial effect.

Cumulative Impacts. Cultural resources in the study area are subject to damage from a variety of natural events and human activities. Under NPS management, resources would be afforded greater protection and monitored. If cultural resources cannot be preserved, the data they possess regarding pre-contact or historic lifeways would be recorded and recovered. This would be done in consultation with the North Dakota State Historic Preservation Office. Cumulative impacts would be minor to major, beneficial and long term, depending on the resource and scope, location, and type of activity.

Conclusion. Cultural resources would benefit from NPS acquisition of the study area. Federally mandated surveys would be conducted and any identified cultural resources would be protected, monitored, and recorded. The effects of these changes would be beneficial, long term, and minor to moderate, depending on the nature of the resource. Cumulative effects would be minor to major, beneficial, and long term. There would be no impairment of cultural resources under this alternative.

Impacts on Biological Communities

Impacts to biological resources under alternative B would occur as a result of continued grazing and oil and gas production in the study area, as these activities would continue. However, the National Park Service would exercise care over siting of new oil and gas wells and associated

facilities such as access roads and pipelines. This would have long-term, minor, beneficial effects on biological communities (e.g., wetlands, riparian areas, and important wildlife habitat). However, some long-term, negligible, adverse impacts from grazing and oil and gas facility/well construction and operation would be expected to occur. New oil and gas operations would be permitted in the expanded park lands, so long-term, minor to moderate impacts on biological communities, including vegetation, wildlife, and wildlife habitat, could occur from construction and operation of wells.

Theodore Roosevelt National Park staff have discussed the idea of using an alternative form of grazing strategy as opposed to the traditional annual permit for eight months a year. Some alternatives that could be explored through the GMP planning process would be a grass bank, swing pasture, twice-over grazing, etc. for the expanded Elkhorn Ranch Unit. A grass bank would allow ranchers to graze herds on park lands during emergencies or periods of drought, while other lands are rested or rehabilitated. A swing pasture would accomplish the same thing but would be regular, scheduled grazing within the park while allowing the permittee to rest his/her USFS allotment. Additional grazing strategies might also be considered. The National Park Service would pursue opportunities to work with the USFS and the Medora Grazing Association to implement a grazing plan that would be beneficial for rangeland health, wildlife, and ranchers that are members of the Medora Grazing Association. Grazing options would be identified and analyzed in the GMP. Until a new GMP is approved, grazing would continue for cultural resource reasons and biological needs on an annual basis, but at reduced levels. Once the Eberts family property is purchased by the federal government, the USFS would decide how to manage the grazing allotment associated with the Eberts base property. That decision would be made by the USFS and is outside the scope of this EA.

Depending on rehabilitation objectives, activities could include mechanical thinning of undesired species, controlled burns, rehabilitation of burned areas, or riparian habitat restoration. A prescribed burn fire management program would be implemented by the National Park Service only after a Fire Management Plan and Environmental Assessment is written and approved. Until then, all fires within the boundary expansion area would be suppressed.

The ultimate combination of grazing, rest, and restoring/simulating natural fire conditions would restore some natural ecological processes in the study area over the long term. In addition, the National Park Service would replant the 428 acres of cropland on the Eberts property with native vegetation, increasing the availability of natural habitat. The grass bank or other grazing strategy, restoration of natural processes, and conversion of cropland would have long-term, minor to moderate, beneficial effects on biological communities, including vegetation and wildlife in the study area.

The National Park Service would actively manage exotic species, favoring the establishment of native species. Cultivated fields would be converted back to native vegetation. The National Park Service would manage the grazing program to reduce cattle impacts on the creek bottom, thereby improving the health of the woody draws and riparian habitat and protecting these environments from such disturbance in the future. Nest trees would be protected, and it is also possible that the

National Park Service would restore disturbed wetland habitat. As a result, long-term, minor to moderate, beneficial effects to biological communities, including riparian areas and wetlands, would be anticipated.

Development on the park expansion lands would be limited. Ranch buildings on the Eberts property would likely be used by the National Park Service to meet additional operating requirements (e.g., providing ranger offices, a visitor contact area, and maintenance functions). If these structures cannot be used, new buildings would be constructed in disturbed areas, minimizing impacts to biological communities. Construction-related activities (e.g., equipment storage and operation) could have negligible to minor, short-term (for the duration of the project), adverse impacts on biological communities. Mitigation (e.g., revegetation of disturbed sites, placing limits on construction activities) would eliminate long-term impacts that could result.

Campgrounds (for example, vehicle accessible campsites, canoe campsites, and perhaps a Maah Daah Hey campsite on the east side of the river) could also be developed in the expanded Elkhorn Ranch Unit, and a gravel road could be extended to provide access to some of these opportunities. These kinds of actions would be determined in a future new GMP. A communications tower for an NPS radio repeater may be needed. These activities could have negligible to minor, localized, long-term, adverse impacts on biological communities. Some of these impacts may be reduced with mitigation.

Cumulative Impacts. The USFS is attempting to implement standards and guidelines that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands, which include the Little Missouri National Grassland. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals, objectives, and standards that seek to protect vegetation, wildlife, and other biological resources. This would have a negligible to minor, long-term, beneficial, cumulative impact on biological communities. Even limited prescribed or natural fires on the surrounding USFS lands could have a cumulative impact from restoring natural ecological processes in the region. This would have a long-term, minor, cumulative impact on biological communities.

Conclusion. Expanding Theodore Roosevelt National Park would have long-term, minor, beneficial effects on biological communities as a result of careful siting of new oil and gas wells and associated facilities. Because existing oil and gas-related activities would be allowed to continue operating and new oil and gas activities would be allowed, construction and operation of wells would have long-term, negligible to moderate, adverse impacts. Establishment of a grass bank or other grazing strategy, restoring natural processes, and exotic species management would have long-term, minor to moderate, beneficial effects on biological communities. Short-term, negligible to minor, adverse impacts may result if the National Park Service determines new facilities are needed in the expanded Elkhorn Ranch Unit. Beneficial cumulative effects from USFS grassland management plans, including fire management, are expected to be negligible to minor, and long term. There would be no impairment of biological communities under this alternative.

Impacts on Threatened and Endangered Species

Under alternative B, habitat for federally listed threatened and endangered species (the bald eagle, whooping crane, etc.) would be protected under NPS regulations. Rare plants and natural communities that occur on the lands proposed for inclusion would also be protected under NPS policies. This could have long-term, minor to moderate, beneficial effects on these species and communities. Finally, after feasibility and suitability studies are conducted, the National Park Service could work with the Service and North Dakota Game and Fish to determine if there is suitable habitat in the expanded Elkhorn Ranch Unit to support reintroduction of threatened/endangered or sensitive species. This could have minor to major, long-term, beneficial effects to any reintroduced species, depending on the success of the program.

Cumulative Impacts. The USFS is attempting to implement standards and guidelines that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands, which includes the Little Missouri National Grassland. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals and objectives for protecting threatened, endangered, or rare species. As a result, cumulative impacts to threatened, endangered, and/or rare species, and rare natural communities, are anticipated to be negligible, long term, and beneficial.

Conclusion. Implementing alternative B would provide added protection for federally listed threatened and endangered species, rare plants, and rare natural communities within the study area. This could have long-term, minor to moderate, beneficial effects on these species and communities. If suitable habitat were found for reintroducing a threatened or endangered species, minor to major, long-term, beneficial effects to that species would be anticipated, depending on the success of the program. Cumulative impacts on threatened, endangered, and/or rare species, as well as rare natural communities, are anticipated to be negligible, long term, and beneficial from implementation of USFS management plans. There would be no impairment of threatened, endangered, and/or rare species under this alternative.

Impacts on Water Resources

Lands currently used for crop production would be converted back to native vegetation under this alternative. This would eliminate pesticides and fertilizers used in crop production and is anticipated to have negligible, long-term, beneficial effects on water quality.

Under NPS policy, more stringent policies regarding secondary containment of oil spills would be implemented. Whereas the state of North Dakota currently requires a clay cap on wellpads, particularly under the storage tank, the National Park Service requires plastic liners under new storage tanks for secondary containment in the event of a spill. The state also requires a berm that holds at least the volume of the largest tank, plus one day's worth of pumping. The National Park Service would require a berm that contains 1.5 times the volume of the largest tank. However, oil and gas wells would not be heavily concentrated in the study area, and there is no indication that

accidental spills that adversely impacted water resources have occurred in the past. If accidental spills do occur, these additional secondary containment requirements could have long-term, negligible to moderate, beneficial effects on water resources, depending on the size of a future spill, its proximity to surface water, and/or the distance to groundwater.

The National Park Service would also require containerized closed loop mud systems on park lands, thus eliminating the use of open pits for drilling mud and other by-products of oil and gas exploration. Contamination of surface water runoff that may occur when rainwater comes in contact with these by-products would thus likely be reduced. Groundwater contamination that may result from infiltration of water that comes in contact with such by-products would also likely be reduced. Containerized drilling is currently required by the state of North Dakota only if a well is being drilled near a river, wetland, or floodplain. The added protection of containerized drilling on park lands, which would include sites near ponds, ephemeral streams, and other water sources not currently protected under state law, would be expected to have long-term, minor to moderate beneficial effects on water resources.

NPS regulations (36 CFR Part 9, Subpart B, § 9.41(a)) include operating standards that require a 500 foot setback from the banks of perennial, intermittent or ephemeral watercourses; the high pool shoreline of natural or man-made impoundments; the mean high tideline; or within any structure or facility (excluding roads) used for unit interpretation, public recreation or for administration of the unit, unless specifically authorized by an approved plan of operations. The Web site for this CFR is provided in the reference section of this EA. The National Park Service would allow operations that qualify for the "existing operations" exemption, under 36 CFR, Section 9.33, to continue under the terms of their existing federal or state permit, including standards for water resource protection. The criteria for this exemption are presented in appendix C. Stipulations and mitigation measures attached to *new* oil and gas operations would be evaluated on a case-by-case basis. Such stipulations could include measures designed to meet standards established by the Clean Water Act. Specific stipulations would be determined to be reasonable time, place, and manner measures designed to protect park resources and values. This would likely result in long-term, negligible, beneficial effects on water resources.

The National Park Service would seek to obtain the water rights currently owned by the Eberts and use them for park purposes such as, but not limited to, irrigation for prairie and native vegetation restoration. Park managers would file appropriate requests with the North Dakota State Water Commission if they wish to change the point of diversion, place of use, or manner of use associated with the rights. Impacts associated with surface water use would be long-term, minor and adverse.

Cumulative Impacts. Additional park planning documents (e.g., a GMP or Resource Management Plan) may impose restrictions on siting oil and gas wells in or near floodplains and wetlands. These regulations and potential policies would have additional long-term, negligible, cumulative beneficial effects on these water resources.

Oil and gas wells are concentrated in and around the study area and may result in adverse impacts to surface water quality. However, the USFS is attempting to implement standards and guidelines

that, among other things, would reduce the impacts of grazing and oil and gas production throughout the Dakota Prairie Grasslands, which includes the national grassland. The *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) establishes goals and objectives for protecting surface water quality. In addition, the Little Missouri State Scenic River Act provides protection for the Little Missouri floodplain and those of its tributaries. Cumulative impacts anticipated under alternative B would be long-term, minor to moderate, beneficial effects. Several other existing water rights on the Little Missouri River are used for irrigating croplands, filling stock ponds for cattle, and providing domestic water use. Exercising these water rights would have cumulative, long-term, negligible, adverse impacts on water quantity available in the Little Missouri River basin.

Conclusion. NPS regulations and policies related to oil and gas operations would afford additional protection to surface waters, groundwaters, wetlands, and floodplains. Well-siting and secondary containment requirements would result in long-term, minor to moderate, beneficial effects to water resources. The National Park Service would seek to obtain the Eberts' water rights to use in prairie restoration, fire management, and livestock use. This would continue to have a minor, long-term, adverse impact on water quantity availability in the Little Missouri River basin. Cumulative impacts related to water quality and protection of wetlands and floodplains would be expected to be long term, minor to moderate, and beneficial. Cumulative impacts on water quantity in the Little Missouri River basin are anticipated to be long term, negligible, and adverse as a result of the numerous existing water rights. There would be no impairment of water resources under this alternative.

Impacts on Soils

Under alternative B, new alternative grazing strategies would be expected to ultimately reduce or eliminate overgrazing. Grazing-related impacts to soils (e.g., compaction, rutting, loss of soil productivity, and erosion during storm events) would probably be minor adverse over the short term, and negligible adverse over the long term, as grazing strategies are fine-tuned to reduce impacts. New oil and gas operations, including operation of construction and drilling equipment, development of new access roads and wellpads, etc., would be expected to have direct impacts such as compaction and rutting, loss of soil productivity, and increased erosion. Secondary containment requirements could reduce the likelihood of soil contamination from leaks or spills during gas and oil production operations. Nevertheless, new impacts from oil and gas operations are likely to be long-term, adverse, and minor.

Cumulative Impacts. Cumulative impacts would be the same as for the no-action alternative. Combined with alternative B, the cumulative effect of road widening, new oil and gas exploration and production activities on surrounding lands, and USFS efforts to protect soil and other resources would be long term, adverse, and minor for soils.

Conclusion. Under alternative B, long-term, adverse, negligible to minor impacts from grazing and long-term, adverse, minor impacts from existing and new oil and gas production activities

would be expected. Cumulative impacts on soils would also be long term, minor, and adverse. There would be no impairment of soils under this alternative.

Impacts on Air Quality

Under this alternative, the park expansion lands would be considered a Class I airshed, as per the Clean Air Act Amendments of 1990. The National Park Service would allow operations that qualify for the "existing operations" exemption under 36 CFR, Section 9.33, to continue under the terms of their existing federal or state permit, including standards for air emissions. The criteria for this exemption are presented in appendix C. Stipulations and mitigation measures attached to *new* oil and gas operations would be evaluated on a case-by-case basis. Such stipulations could include measures designed to meet emission standards under the Clean Air Act. Specific stipulations would be determined to be reasonable time, place, and manner measures designed to protect park resources (airsheds) and values (e.g., clear skies and expansive views). As a result, negligible to minor, long-term, beneficial effects to air quality would be anticipated.

Regardless of these requirements, which could include road improvements to control fugitive dust from increased visitor vehicular travel if park resources or values are threatened, wind blown dust would continue to affect air quality in the park expansion lands. Therefore, intermittent, short-term, negligible, adverse impacts to air quality would be expected to continue as a result of wind blown dust.

Cumulative Impacts. The USFS has outlined some standards in the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) that would require compliance with federal and state air quality protection regulations. This would have long-term, negligible to minor, beneficial, cumulative impacts. These standards would not influence wind blown dust as a source of particulate matter air pollution, so cumulative impacts related to this matter would continue to be short term, negligible, and adverse.

Conclusion. Measures designed to meet emission standards under the Clean Air Act may be imposed on oil and gas operations that do not meet the "existing operations" exemption under 36 CFR, Section 9.33. Therefore, negligible to minor, long-term, beneficial effects to air quality would be anticipated. Intermittent, short-term, negligible, adverse impacts to air quality would be expected to continue from wind blown dust from vehicular travel related to increased visitation and oil and gas operations. Cumulative impacts from implementation of the USFS grassland management plan would likely be long term, negligible, and beneficial, while cumulative impacts from wind blown dust would continue to be short term, negligible, and adverse. There would be no impairment of air quality under this alternative.

Impacts on Visual Resources and Noise

Under this alternative, the National Park Service would take measures to ensure that future oil and gas development would be conducted in such a way as to protect the aesthetic quality of the

viewshed. This could include the placement of pumpjacks and other infrastructure below ridgetops and out of the viewshed whenever possible. Quieter technology (e.g., electric motors or heavily muffled diesel engines) might be required to run the wells and pumpjacks to reduce noise. The effect would be beneficial, long term, and minor to moderate.

Acquisition of the SHSND tracts would provide a larger park area, allowing the National Park Service to better protect the scenic quality of the Elkhorn Ranch home site. Moreover, with the tracts under NPS management, it is likely that future road proposals would not include a bridge over the Little Missouri River so close to the Elkhorn Ranch. Grazing strategies would be managed on the west side of the river to improve the health and habitat of the study lands and meet cultural landscape needs. This would constitute a long-term, minor to moderate, beneficial effect to visual resources.

The natural scenery and cultural integrity of the properties would be maintained; preserving the expansive natural and cultural landscapes. These effects would be minor to moderate, beneficial, and long term.

Cumulative Impacts. There is a trend in the area in which ranches are being converted to guest ranches or "ranchettes." Such development could affect visual resources. To date, this has not directly affected the natural landscape visible from the park. If trends continue, development could ultimately intrude into the park's viewshed, compromising the largely undeveloped landscape currently visible from the Elkhorn Ranch site. Continued oil and gas development in the surrounding area could impact visual resources and contribute noise, depending on the nature of development (depending on the level and location of development and types of engine technology used). Cumulative impacts would be adverse, long term, and negligible to minor.

Conclusion. Under alternative B, the park would manage 6,581 acres in the study area. This would protect aesthetic visual resources and constitute a long-term, minor to moderate, beneficial effect. Cumulative impacts to the resource would be adverse, long term, and negligible to minor. There would be no impairment of visual resources under this alternative.

Impacts on Land Use and Recreational Opportunities

Recreational Opportunities (including hunting). Under this alternative, recreational opportunities would be expanded. New backcountry trails, watchable wildlife programs, interpretive programs (including the interpretation of multiple-uses such as grazing, and oil and gas development), and environmental education programs could be developed. Specific direction for management of the expansion lands would be provided in a new GMP, but some preliminary management ideas give a general sense of the types of activities and facilities that might be anticipated. Primitive campsites, including canoe campsites, could be provided. Recreational trails would increase backcountry appeal, and possibly attract backpackers or horseback riders. Non-motorized vehicles, such as bicycles, would be permitted on the roads open to motorized vehicle traffic. Bicycles would also be permitted on the Maah Daah Hey Trail and may be permitted on

other trails or routes where a written determination has been made by the superintendent that such use is consistent with the protection of the area's natural, cultural, scenic, and aesthetic values, safety considerations, management objectives, and will not disturb wildlife or other park resources. New interpretive opportunities could allow park staff to communicate more regional stories (e.g., Native American, Theodore Roosevelt, ranching, mineral production) and resources. Substantial increases in visitation are not expected as a result of boundary expansion, but more opportunities should be available to visitors. It is anticipated that long-term, minor to moderate, beneficial effects on recreational opportunities would result from implementing alternative B.

Use of offroad vehicles (ORV) by the public is prohibited on USFS, state, and private lands within the study area. Snowmobile use by the public is permitted on USFS and state lands. ORV (defined by the National Park Service as "any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain) use is currently nearly non-existent in the study area. *NPS Management Policies* provide direction for the management of ORVs (including snowmobiles) on land administered by the National Park Service. Within the National Park System, routes and areas may be designated for ORVs if the use is consistent with the purposes for which the park unit was established. Routes and areas may be designated only in locations in which there will be no adverse impacts on the area's natural, cultural, scenic, and esthetic values, and in consideration of other visitor uses (*NPS Management Policies* 8.2.3.1 and 8.2.3.2). ORV use would probably be prohibited within the expanded boundary, except in certain limited circumstances in connection with authorized use by permittees operating within the park area, administrative uses, search and rescue, fire fighting, and similar non-recreational uses. NPS ORV use would be limited to what is necessary to manage the public use, to conduct emergency operations, and to accomplish essential maintenance, construction, and resource protection activities that cannot be accomplished reasonably by other means. When such use is necessary and appropriate, the least impacting equipment and vehicles would be used, consistent with public and employee safety. Specific decisions regarding the use of ORVs and snowmobiles would be formulated in a new GMP. Potential changes in the management of ORV and snowmobile use would constitute a negligible, long-term, adverse impact to recreational opportunities.

Hunting is a popular recreational activity within the study area. The number of hunters using the study area is unknown, but presumed to be rather small in comparison to those using the surrounding federal and state land. Hunting would be allowed in the study area if authorized by Congress, and it would be managed by the National Park Service in such a way as to constitute a neutral impact. NPS units that allow hunting are typically called "preserves."

Land Use. Management of grazing in the study area would fall to the National Park Service. The boundary expansion lands could be managed as a grass bank, or some other grazing strategy, with stipulations in place to protect sensitive resources and the woody draws. The AUM numbers would be reduced initially to reallocate some vegetative resources for wildlife and cover. After the cultivated land is converted to native vegetation, grazing AUMs may increase beyond current levels. The specifics of grazing management would be worked out in future planning documents. The USFS and Medora Grazing Association may be invited to cooperate with the park in the

management of grazing permits in the study area. Having additional grazing lands available for other ranchers in the area benefit them and their livestock program. Through sustainable management, the overall long-term productivity of the land for grazing would be enhanced, constituting a minor, long-term, beneficial effect.

If the Eberts family property is purchased by the federal government, the USFS would decide how to manage the grazing allotment associated with the Eberts base property. That decision would be made by the USFS and is outside the scope of this EA.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on land use and recreational opportunities under alternative B.

Conclusion. Recreational opportunities would be enhanced under this alternative. New opportunities such as campgrounds, backcountry trails, watchable wildlife programs, interpretive programs, and environmental education programs, would likely have long-term, minor to moderate, beneficial effects on recreational opportunities. ORV and snowmobile use would be managed differently than they are now and this would constitute a negligible, adverse, long-term impact.

Direct effects on grazing and agriculture would be beneficial, long-term, and minor, because more range would be available to ranchers in the region.

Impacts on Park Operations

Under this alternative, the park would acquire management responsibility for the roads, utilities, buildings, and associated ranching structures. Appropriate structures on the Ebert property could be adaptively reused for a ranger residence, offices, and the like. No substantial development would be expected to occur on the land, and none would be expected on the west side of the river. A radio repeater would be needed to ensure radio communication between park units. This tower would be available for cooperating agencies including their radio coverage. Some fence construction or removal might be needed to manage cattle grazing and other uses. At least one river ford would be maintained for emergency and administrative operations. These actions would have long-term, minor to moderate, adverse impacts on park operations without an increase in park budget.

It is estimated that the park would need to increase its staff by about four full-time equivalent employees and the budget would have to increase by an estimated $292,000 per year (personnel and support). With increased staff and budget, the necessary infrastructure changes could be accomplished. Some park employees would be based at the Eberts ranch site. This would allow for efficient operations on various levels. Park staff living in the expanded area would be trained and available to respond to wildfire emergencies, search and rescue, emergency medical cases, visitor assists and law enforcement incidents inside the park and outside the boundaries, when requested by the county sheriff or state emergency dispatch. The park has significantly increased its wildfire

fighting ability in the last three years with new wildland fire engines and additional trained personnel. Currently, if a fire occurred on the Elkhorn Ranch Unit or in the vicinity, fire fighting resources are several miles away. For the park to respond, firefighters and equipment must come from Medora to the Elkhorn Ranch Unit, a distance of nearly 30 miles or more. If the expansion is authorized and operational funds become available, the park would have fire-qualified staff and at least one wildland fire engine stationed at the site. The expansion would significantly increase the park's ability to respond to wildfires either on parkland or, when requested by the county or USFS, provide an immediate response to fires on adjacent land. This would constitute a long-term, moderate, beneficial effect on park operations and visitor services in the area.

The USFS would experience a beneficial effect from consolidation of lands proposed through land exchanges in alternative B. This would allow for more efficient and complete management of holdings. The effect would be long term and minor.

Cumulative Impacts. No past, ongoing, or reasonably foreseeable future actions would be expected to result in a cumulative impact on operations under alternative B.

Conclusion. The impact of alternative B hinges on the ability of the park to implement the necessary operational changes needed to efficiently manage the expansion. Under current staffing and funding, the added operational responsibility that the expansion would require would strain both budget and staff. The impact would be long term, adverse, and minor to moderate. However, if the park receives additional funding and staffing, operations would benefit. The impact would be long term and moderate, resulting from improved emergency response, communications, and management of the boundary expansion area. The USFS would experience a minor, long-term, beneficial effect from consolidation of holdings. There are no cumulative impacts under this alternative.

Impacts on Nonfederal Oil and Gas Operations

Under this alternative, the National Park Service would continue to recognize all rights associated with valid federal leases existing as of the date Congress declares the subject land within the boundary expansion under the jurisdiction of the National Park Service. The National Park Service would also continue to recognize private mineral rights within the boundary expansion. Oversight of all oil and gas exploration and development would be the responsibility of local park staff, with training and technical assistance from the NPS Geologic Resources Division, regional offices, and other national parks with such activities.

The BLM, which issues federal mineral leases on federal lands, would deny requests for the issuance of new federal mineral leases on lands that would be added to the park through a boundary expansion.

The National Park Service would manage nonfederal oil and gas operations in the boundary expansion area under its regulations at 36 CFR Part 9, Subpart B (“9B Regulations”). Under 9B

regulations, those operations that have a valid federal or state permit at the time of congressional authorization for the boundary expansion may qualify for the "existing operations" exemption at Section 9.33. The exemption criteria language is provided in appendix C. These exempted operations would be allowed to continue to operate pursuant to the terms of their existing permits, until the permits expire, or a new permit is issued. At that point, the exemption under Section 9.33 is lost.

With respect to the conduct of new operations associated with nonfederal mineral rights, the 9B regulations require that operators submit and obtain NPS approval of a plan of operations and file a suitable performance bond. A plan of operations is essentially an operator's "blueprint," and the requirement to submit a plan allows the National Park Service to evaluate potential impacts on park resources and values from proposed oil and gas activities. Approved operations are subject to specific stipulations and mitigation measures that are attached as conditions of approval. Stipulations and mitigation measures are reasonable time, place, and manner measures designed to protect park resources and values and are determined on a case by case basis. Approved plans are also subject to operating standards found at 36 CFR Section 9.41.

Since the 9B regulations were promulgated in 1978, the National Park Service has never denied a nonfederal oil and gas operator the right to develop bona fide nonfederal oil and gas rights in a park unit. The National Park Service has been able to work cooperatively with operators to assist them in devising development proposals that mitigate potential impacts to park resources and values. In the event the National Park Service did not approve an oil and gas operator's plan, the 9B regulations provide an aggrieved operator with the right to administratively appeal the decision. Conservation groups and/or interested individuals cannot administratively appeal a decision under the 9B regulations, but can bring certain actions in federal court challenging the decision. Given these considerations, negligible to minor, long-term, adverse impacts on existing and new nonfederal oil and gas exploration and development could occur from the implementation of the 9B requirements.

NPS processing time for new nonfederal oil and gas operations is generally four to six months. This time frame is measured from the date an operator initiates planning discussions with park staff to the time an operator obtains approval to conduct operations. It includes time spent by an operator in scoping a project with the National Park Service, acquiring relevant environmental data, and preparing the plan of operations; the time the National Park Service spends in consultation with other federal, state, and local agencies; and in complying with NEPA and other pertinent statutory and policy requirements. This could have short-term (four to six months), negligible, adverse impacts on nonfederal oil and gas operations.

The National Park Service requires liability bonding of up to $50,000 per operator, and a plugging and reclamation bond that depends on several factors, including the size of the wellpad and the depth and configuration of a well. In any event, the total bond amount, per operator, is capped at $200,000. Currently, the state of North Dakota requires a $15,000 liability bond for one well, or $50,000 for up to ten wells. The state also requires a $15,000 plugging and reclamation bond. These

increased costs could have minor to moderate, long-term, adverse impacts on existing and new nonfederal oil and gas development in the boundary expansion area.

Some differences between oil and gas exploration and development on private or USFS lands in North Dakota and on NPS lands include NPS requirements for impermeable liners under storage tanks and a containerized, closed-loop mud system instead of using an open pit for drilling mud or other by-product storage. Whereas the state of North Dakota currently requires a clay cap on wellpads, particularly under the storage tank, and containerized drilling if a well is being sited near a river, wetland, or floodplain, the National Park Service requires plastic liners below tanks for secondary containment in the event of a spill and containerized drilling on all park lands. The state also requires a berm that holds at least the volume of the largest tank, plus one day's worth of pumping. The National Park Service would require a berm that contains 1.5 times the volume of the largest tank. The increased costs from secondary containment requirements around storage tanks are not substantial; however, increased costs from the implementation of containerized drilling procedures could have a short-term, negligible to minor, adverse impact on nonfederal oil and gas development in the expanded Elkhorn Ranch Unit of Theodore Roosevelt National Park. It should be noted that the National Park Service has never required a company to come in and retrofit an existing tank battery by removing the tanks and placing a liner under them. The National Park Service may require such a retrofit if the tanks have a history of leaking and the operator does not respond quickly or properly. In this case, operations would be temporarily suspended until the threat is abated. This would result in short-term, negligible, adverse impacts to nonfederal oil and gas operations.

If an existing operation poses an "immediate threat of significant threat of injury to federally owned or controlled lands or waters," the superintendent has the authority to suspend that operation until the operator cures the threat. This could have a minor to moderate, short-term (until the operator remedies the situation) impact on nonfederal oil and gas developments in the expansion lands.

As a result of the boundary expansion, more visitors would probably visit the study area than is currently the case. This would allow the park the opportunity to interpret and educate the public about the need for oil and gas production and the management of this use on public lands.

More visitation would increase the chance that a member of the public may approach an oil and gas production facility. The park would assist oil companies by providing safety information about avoiding drill sites in publications, on bulletin boards, and in educational programs. To further reduce the threat to public health and safety and avoid liability, the National Park Service may require that oil and gas operators install a gate on well access roads to preclude access by park visitors in vehicles. Three-strand barbed wire fencing around existing production pads appears to meet NPS concerns. However, the fenced area could be reduced and operators could attach "do not enter" signs (where they do not exist already) to fences to warn the public of potential hazards. Despite these mitigation measures, long-term, minor, adverse impacts to public health and safety from exposure to toxic gases or mechanical accidents could continue under this alternative, if a member of the public accessed a drill pad.

Cumulative Impacts. The USFS has outlined new standards and guidelines in the *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001) related to geophysical (seismic) operations, oil and gas operations, and energy and mineral-related special uses on USFS lands adjacent to the Eberts property. If approved, these standards and guidelines would include: obtaining water for mineral operations from private sources (with exemptions); prohibiting storage of equipment not in use; prohibiting new road construction for geophysical operations, unless alternatives have been assessed and determined to be more environmentally damaging; discouraging the use of open reserve pits for oil and gas operations (in cases where open pits are justified, analyze and monitor construction and use to minimize potential for leakage and structural failure); providing onsite and offsite information warning of the dangers of hydrogen sulfide; restricting development and reclamation activities within 0.25 miles of a developed recreation site between May 1 and December 1; minimizing disturbances by co-locating roads, pipelines, gathering lines, and power lines for energy resource development; and charging fees for surface uses when commercially produced water disposal wells are permitted. This would likely have a long-term, minor, adverse impact on nonfederal oil and gas development.

Conclusion. NPS processing time for new nonfederal oil and gas development is generally four to six months. Current operations on the Eberts property may qualify for the "existing operations" exemption under 36 CFR Section 9.33. Operators conducting operations that do not meet the existing operations exemption, would be required to submit a plan of operations and a performance bond to the National Park Service for approval. Specific stipulations and mitigation measures included in an approved plan of operations beyond those articulated in the 9B regulations are determined on a case-by-case basis, but would be reasonable time, place, and manner restrictions designed to protect park resources and values. Costs, both in terms of an operator's actual monies expended and associated with process and complying with 9B regulations will increase. Given these considerations, negligible to minor, long-term, adverse impacts on new and existing nonfederal oil and gas development could occur from these regulatory requirements.

Increased costs associated with bonding requirements, secondary containment requirements, and containerized drilling requirements could have a negligible to minor, short-term, adverse impact on nonfederal oil and gas development in the expanded Elkhorn Ranch Unit of Theodore Roosevelt National Park.

If operations are temporarily suspended by the National Park Service (due to safety or compliance problems) there could be an adverse, negligible to moderate, short-term (until the operator remedies the situation) impact on nonfederal oil and gas development in the expansion lands.

Cumulative impacts to nonfederal oil and gas development in the expanded park would likely arise from USFS implementation of their *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region* (2001). This would likely have a long-term, minor, adverse impact on nonfederal oil and gas development.

Impacts on Socioeconomics

The transfer of 6,581acres of private and state land to federal ownership would insignificantly affect the tax base in Billings County. Taxes paid by the Eberts on 5,150 acres in 2001 (for the 2000 tax year) were $1,867. This loss of revenue would be mitigated by increased PILT to the county. When the government acquires a fee interest in land, there are two payments made to the county receiving the tax payments while that land was in private ownership. The following two payments are known as PILT:

1. One percent of the fair market value of the property acquired, but not more than the previous year's real estate tax payment. This payment continues for the first five years.

2. A second payment, called an entitlement payment, is based on $1.92 per acre of eligible land. This is paid indefinitely from the time of transfer of title to the government. This figure can change from year to year as it became tied to the Consumer Price Index after 30 September 1999. This figure cannot fall below $0.26 per acre.

The actual amount received by the county varies from year to year depending upon the Consumer Price Index, the revenues received from the federal government in previous years, and the amount Congress actually appropriates to cover PILT. (For example in 2001, Congress appropriated 58.8 percent of the full PILT payment.)

Using the 2001 formula, the county would receive $1,885 per year for the first five years (roughly the same amount it collected in taxes in 2001). The PILT payments would decrease after the first five years by approximately $1,000.

It is expected that the National Park Service would hire about four additional full-time equivalent employees to manage expanded parklands. A percentage of these employees' salaries would be spent in the local communities, possibly compensating for the impact of the reduced PILT payments. Increased operational funds would be spent for services, supplies, and contracts provided by the private sector. Overall, this would have a long-term, negligible to minor, beneficial effect on the local economy.

The willing sellers of the Eberts Ranch and Mosser parcels would be compensated for their land according to NPS-approved real estate appraisals. This would constitute a short-term, major, beneficial effect to the landowners and potentially an indirect, short-term, minor benefit to local businesses from landowners expenditures.

Acquisition of the study area would improve visitor access to the Elkhorn Ranch Unit (and study area). Improved visitor access, in conjunction with increased educational and recreational opportunities, might encourage some park visitors to stay in the area longer, possibly including an additional overnight stay. The potential effect to socioeconomics would be beneficial, long term, and minor.

Changes in study area facilities to support adaptive reuse (and some limited construction) would potentially benefit the local economy through NPS expenditures. This beneficial effect would be minor and short term.

The Medora Grazing Association would lose administrative control of a small amount of range (the majority of the grazing in the study area is not under their management). This could constitute a negligible, long-term, adverse impact from the loss of revenue. This impact may be converted to a long-term, negligible, beneficial effect if the association decides to cooperatively administer the grazing permits in the expanded park with the National Park Service.

Under alternative B, other current beneficial effects on the economy, including those associated with the oil and gas industry, would continue.

Cumulative Impacts. The most apparent cumulative impact associated with alternative B is that much of the land in Billings and McKenzie Counties is already owned by the federal government. Removing another 6,581 acres from the tax base could further impact municipal functions, including the struggling school system. This would be mitigated through Federal Lands Impact Aid, PILT, increased park spending, and increased tourism revenues. With this mitigation, long-term, negligible, beneficial cumulative effects would be expected to occur.

Conclusion. Potential beneficial effects associated with alternative B are: long term, negligible to minor related to increased NPS staff; long term and minor associated with longer visitor stays; short term and major to landowners; indirect, short term, and minor to local businesses from potential NPS expenditures; and short term, minor, related to fencing and construction projects on the new NPS properties Other effects are long term, negligible, and adverse or beneficial to the Medora Grazing Association. With mitigation, the acquisition proposed in alternative B would constitute a minor, long-term, cumulative, beneficial effect on the local economies.

COMPARISON OF ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

The following table summarizes and compares the environmental consequences of alternatives A and B.

TABLE 8. COMPARISON OF ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

RESOURCE AREA	ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES	
	Alternative A (No-Action)	**Alternative B (Preferred Alternative)**
Cultural Resources	None to Long-term, negligible, adverse impacts	Long-term, minor to moderate, beneficial effects
Biological Communities	Short and long-term, minor to moderate, adverse impacts	Long-term, negligible to moderate, beneficial, and/or adverse effects
Threatened and Endangered Species	Long-term, minor to moderate, adverse impacts	Short- and long-term, minor to major, beneficial effects
Water Quality	Long-term, negligible to minor, adverse impacts	Long-term, minor to moderate, beneficial effects and long-term minor adverse impacts
Soils	Long-term, adverse, and minor impacts	Long-term, adverse, negligible to minor impacts
Air Quality	Intermittent, short-term, negligible, adverse impacts	Intermittent, short-term, negligible, adverse, and long-term, negligible to minor, beneficial effects
Visual Resources and Noise	None to moderate adverse impacts	Long-term, minor to moderate, beneficial effects
Land Use and Recreational Opportunities	None anticipated	Long-term, minor to moderate, beneficial, and negligible adverse effects
Park Operations	None anticipated	Long-term, minor to moderate, beneficial, and adverse effects
Nonfederal Oil and Gas Management	Long-term, negligible to minor, adverse impacts	Long-term, negligible to minor, adverse effects
Socioeconomic Environment	None to short- and long-term, negligible, beneficial effects	Long-term, negligible to minor, beneficial effects; short-term, minor to major, beneficial effects; and long-term, negligible, adverse impacts

EVALUATION OF FEASIBILITY AND CONCLUSIONS

BOUNDARY ADJUSTMENT CRITERIA

According to *NPS Management Policies* (2001), boundary adjustments may be necessary or desirable to carry out the purposes of the park unit. Boundary adjustments may be recommended if they fulfill at least one of the following three criteria:

- protect significant resources and values, or to enhance opportunities for public enjoyment related to park purposes;
- address operational and management issues such as the need for access or the need for boundaries to correspond to logical topographic or other natural features, or to roads; or
- otherwise protect park resources that are critical to fulfilling park purposes.

Recommendations to expand park boundaries must also be preceded by determinations that:

- the added lands will be feasible to administer, considering size, configuration, ownership, hazardous substance potential, costs, the views of and impacts on local communities and surrounding jurisdictions, and other factors such as the presence of exotic species; and
- that other options for management and resource protection are not adequate.

The first set of resource criteria is considered first; then the feasibility factors. The study area lands described in this document would clearly fulfill the first boundary adjustment standard if they were added to Theodore Roosevelt National Park and managed by the National Park Service.

RESOURCE SIGNIFICANCE AND OPPORTUNITIES FOR PUBLIC ENJOYMENT RELATED TO PARK PURPOSES

The boundary expansion lands are part of the original Elkhorn Ranch—the ranch that Theodore Roosevelt owned and ran cattle on in the 1880s. He wrote, "My home ranch lies on both sides of the Little Missouri, the nearest ranchman above me being about twelve, and the nearest below me about ten, miles distant." Roosevelt's time at the Elkhorn was influential in forming the land use ethic that was a defining part of his presidency. Currently, only the ranch house site (218 acres) on the west side of the Little Missouri is protected as part of Theodore Roosevelt National Park. Roosevelt often sat on the veranda of the ranch house and gazed across the river at the scenic meadows, cliffs, and buttes that are today part of the Eberts and Mosser properties.

Grazing and hunting are historical uses of the property and commensurate with Theodore Roosevelt's use of the property. In order to preserve the cultural landscape and historical use of the property, the National Park Service recommends that Congress continue to allow hunting and grazing.

The Elkhorn ranch house site has been nominated to the NRHP, but as a site rather than a landscape. Because of the association with Roosevelt, portions of the study area may have potential to be included in an expanded "Elkhorn Ranch Historic District."

The extent of prehistoric archaeological resources in the study area is unknown; however, it is very likely that there are lithic (chipped stone) scatters in the study area. Tipi rings, eagle traps, and other resources may also exist. The discovery of archaeological resources associated with ranching and homesteading would not be unexpected. One potentially historic structure, the Annear Schoolhouse, exists on the Mosser parcels.

The boundary expansion would be large enough to allow visitors to gain a better understanding of the land qualities that helped Roosevelt form his conservation ethic. It would expand opportunities to enjoy and experience more remote scenic areas of this portion of North Dakota, and understand and visualize the open range era in the Badlands. Additional backcountry trails and interpretive opportunities related to Roosevelt's utilitarian views regarding conservation (the right to use, but not abuse) could be provided. The potential for public use and interpretation of these values and for multiple use management of public lands is high.

Adding the boundary expansion lands to the Elkhorn Ranch Unit of the park would provide formal public access to the river so that visitors can wade across the Little Missouri River and access Roosevelt's Elkhorn Ranch site. It would also provide greater opportunities for solitude.

With the boundary expansion, Theodore Roosevelt National Park would acquire management responsibility for approximately three miles of Little Missouri River shoreline that is currently in private ownership. Some of the river bottomland along this stretch supports cottonwood forests. This plant community provides potential native habitat along the Little Missouri River. The boundary expansion lands also support other important plant communities and habitats, most notably mixed-grass prairie, woody draws, and juniper-covered badlands. NPS management would help maintain and/or restore these plant communities and habitats through active management of grazing, fire, and exotic species.

Thus, the study area lands described in this document meet NPS criteria for boundary adjustments and are suitable as potential additions to Theodore Roosevelt National Park. Feasibility for protection and other options for management and resource protection are discussed in the following sections.

FEASIBILITY FOR PROTECTION

Size and Configuration for Management and Ownership

Study area lands, if they were added to the Elkhorn Ranch Unit of Theodore Roosevelt National Park, would be feasible to administer, given their size and configuration. Adding the study area lands would provide enough of a land base to draw visitors to this unit of the park and make interpretation worthwhile. Currently, the Elkhorn Ranch Unit is only visited periodically by NPS personnel. Adding the lands would justify onsite staffing, which would provide better security and protection for the unit. The boundary addition would also protect access to the Elkhorn Ranch Unit from both sides of the Little Missouri River and ensure that such access, including river crossings, is compatible with the purposes of the park. The land exchanges discussed in this document would also serve to consolidate holdings by other public agencies.

Acquisition Costs

A real estate appraisal has been completed for the Eberts property with assistance from the Trust for Public Lands. This appraisal is under review by the NPS Land Resources Division. Real estate appraisals have not been conducted for the other private parcels in the potential boundary expansion area. The National Park Service would fund these appraisals and appraisals for the state lands, with possible financial assistance from the Trust for Public Lands. Private lands would be purchased only from willing sellers. If a boundary expansion were approved, cost appraisals would be prepared and/or approved by the Land Resources Division of the National Park Service, Midwest Region, before any funds could be allocated to purchase the lands. Funds would also be needed for title searches and environmental surveys.

The SHSND and State School Lands would be acquired by donation or exchange. For example, if the National Park Service were to purchase the Eberts Ranch, it could exchange the land surface rights in Section 27 (Township 143N, Range 101W) for State School Lands (surface rights) in Section 36 (Township 144N, Range 102W). Similarly, it could exchange parcels in Section 24 (Township 144N, Range 102W) for USFS parcels in Section 28 (T144N, R102W) that are adjacent to the Little Missouri River. If a boundary expansion were approved, the National Park Service would pursue such exchanges with state and USFS officials. The North Dakota state legislature must approve exchanges or transfers of state land.

An administrative land transfer or exchange would transfer parcels between the National Park Service and the USFS parcels, at little or no cost.

Access, Development, and Staff Requirements

Access. The Elkhorn Ranch Unit and the boundary expansion lands are located roughly 33 road miles north of Medora, North Dakota. From Medora, access to the boundary expansion lands is via East River Road (USFS #702), which roughly parallels the Little Missouri River on its east side. East River Road intersects with Blacktail Road (Forest Highway 2) at the south boundary of the Mosser property (Section 3, T143N, R102W). Access from the east (from the town of Fairfield on Highway 85) is via Blacktail Road.

The river ford between Sections 27 and 28 has been a long-used river crossing when conditions permit, and it is one of the few river crossings in this stretch of the Little Missouri River. The crossing was recently closed by the landowners. The decision whether to re-open the ford for limited public access would be made (if the park expansion is authorized) by the U.S. Congress. Because the crossing goes from the Eberts property to another individual's private land, the park staff would have to meet with the landowner and negotiate maintenance, liability, signing, extent of development, and other such details to allow the public access to this ford. The decision may need input from the USACE through a section 404 permit and would also require review by the Little Missouri Scenic River Commission. One of the three river fords in the area would likely remain open and available for use when river conditions permit.

Development. When Theodore Roosevelt decided to purchase a second ranch, he specifically sought one that was remote and offered the solace and quiet he desired. The National Park Service anticipates keeping facilities to a minimum, to maintain the character and scenic qualities that existed during Roosevelt's time. No substantial new development would be expected under alternative B.

Future management guidance for the boundary expansion lands, including use or removal of facilities, would be provided by a new GMP. Some preliminary ideas on potential park development are as follows:

- provide recreational trails (possibly connecting with the regional Maah Daah Hey Trail) that interpret Roosevelt's conservation ethic or multiple use of public lands;
- provide a limited number of primitive vehicle campsites, canoe campsites on the east side of the river, and perhaps a Maah Daah Hey Trail campsite and equestrian campground;
- provide for visitor contact at a ranger station facility; and
- provide the minimum administrative and housing facilities necessary to protect resources and provide for visitor services.

The National Park Service has identified some initial actions that would be needed to ensure that the boundary expansion lands are properly maintained until management direction is decided in a future new GMP. There are several structures on the Eberts property, including the ranch house and outbuildings, a barn, and a modular residence that has been used periodically by hunting

guests. Some ranch structures could be adaptively reused for park purposes—a ranger residence, visitor contact station, equipment storage, etc.

A new well and chlorination system would probably be needed at what is now the ranch headquarters. The existing ranch well is designed for single family use, so water production capacity would be inadequate to provide for potential administrative and public uses. A chlorination system would be needed to meet federal standards for providing water for public consumption.

An addition to the park's radio system would be needed to administer lands in the boundary expansion. A radio assessment would determine specifics; a radio repeater would probably be needed, but the park might require a repeater even without a boundary expansion as it converts from analog to digital radio technology. Cooperating agencies could also use this new tower. Most fences (4-strand barbed wire) would be retained until park managers determined other fencing needs. Fences between parcels might require removal to facilitate recreational use. Additional vehicles, including a fire engine, would be needed.

About 428 acres of cropland would be replanted with native vegetation.

Land acquisition costs in the Little Missouri Badlands vary considerably depending upon the size of the parcel being sold, proximity to an established community, range condition, and suitable building conditions. In the last five years, ranch land has been selling for $400 to $750 per acre. Any property that is acquired by the federal government must be appraised by an approved land appraiser. The government can only purchase the land and improvements at fair market value. Approximately 6,516 acres of private land are proposed for acquisition. Based on the above values, land acquisition costs would vary from $2.6 million to $4.9 million.

Operational costs (primarily employee staff costs) are estimated at $292,000 annually. Initial facility and equipment needs and related costs are summarized in table 9.

TABLE 9. INITIAL FACILITY AND EQUIPMENT NEEDS AND RELATED COSTS

Anticipated Initial Needs	Approximate Cost ($)
Remodel ranch structures for park purposes	150,000
Well & chlorination system	40,000
Radio repeater	30,000
Vehicles	168,000
Restore prairie vegetation	42,000
Total Estimated Cost	**$430,000**

Staffing Needs. A preliminary assessment of NPS staffing needs indicates that about four additional full-time equivalent staff positions would be needed for initial startup to manage the boundary expansion lands for alternative B. These positions would include resource management, interpretation, visitor use/protection, and maintenance. A new GMP would address additional staffing needs to maintain current and future buildings and roads, as well as manage the likely increase in public use due to interest in the area.

Trends, Current Plans, Threats

The Billings County zoning ordinance, which was passed in 1974 with some amendments, would not protect the boundary expansion lands from development or conversion to land uses that could compromise the scenic and cultural values of the park's Elkhorn Ranch Unit. In other parts of McKenzie and Billings Counties, ranches are being converted to guest ranches, or subdivided into "ranchette" properties. If the Eberts property were converted to one or more of these uses, adverse noise and visual impacts could result, particularly if buildings or roads were built on ridgelines or near the river. Noise from vehicle traffic, new structures, and human activities could transform the surrounding environment, making it very different from what Roosevelt experienced.

Proposals to build a bridge over the Little Missouri River near the Elkhorn Ranch Unit have resurfaced over recent decades. The most recent formal proposal would have constructed a new bridge over the Little Missouri River in the immediate vicinity of the Elkhorn Ranch Unit, and paved the Blacktail Road (Forest Highway 2) to connect Highway 85 with Highway 16. A portion of this new all-weather road would have been constructed on the Mosser property included within the study area. Eventual construction of the bridge and connecting road could compromise the park's scenic and cultural values.

Mineral Rights, Grazing, and Water Rights

Mineral Rights. Subsurface mineral rights for the Eberts land in the boundary expansion area are held by a private individual; by the federal government; and by Burlington Resources, an oil and gas exploration, development, and production company. The Eberts own none of the subsurface mineral rights. There are five active oil and gas wells on the Eberts property. There is also a large gravel deposit. Gravel has been purchased by Billings County in the past for road improvements.

Subsurface mineral rights on the Mosser land are primarily held by Burlington Resources and the federal government. There is one active oil and gas well on the Mosser property.

Subsurface mineral rights on the State School Lands are owned by the state of North Dakota, and are managed to provide income for state schools. There are no active oil and gas wells on the State School Lands. One well has been plugged and abandoned.

Subsurface mineral rights for the USFS parcels are owned by the federal government. The federal government owns some mineral rights under private lands within the study area. The USFS administers surface activities related to oil and gas production on USFS lands; the BLM administers subsurface (oil and gas production) activities on federal lands. There are no active oil and gas wells on USFS lands.

Mineral rights on the SHSND parcels have been retained or purchased by an unknown party; a title search at the county may be needed to determine who owns these rights. There are no active oil and gas wells on the SHSND parcels.
Special legislative authority would be needed to permit new oil and gas exploration and production on boundary expansion lands. The National Park Service would seek such legislative authority as part of the boundary expansion, as Theodore Roosevelt was a strong believer in multiple use, and because NPS managers believe that oil and gas activities can be managed here so that surface resources are protected. Special legislative authority would not be needed to allow existing oil and gas operations that are associated with valid mineral rights to continue. Existing operations would be allowed to operate under the terms of existing federal or state permits.

Mineral activities for federally owned subsurface resources would continue to be administered by the BLM. Mineral activities for privately owned subsurface resources would continue to be administered by the state of North Dakota. Surface resources, including water bodies, would be managed by the National Park Service in a manner consistent with protecting the scenic, natural, cultural, and recreational values of the park.

Grazing. Grazing occurs on most of the lands within the study area, including the privately owned Eberts and Mosser parcels, SHSND lands, State School Lands, and USFS lands. The Medora Grazing Association, a local grazing management organization, has one grazing permit from the USFS for grazing on all lands in the boundary study area and other USFS lands within Billings County. The grazing association then issues numerous individual grazing permits within the county.

An approximately 18,000-acre grazing allotment (primarily USFS lands east of the ranch, plus some state and other private lands) is assigned to the Eberts Ranch. If the park boundary were expanded, the portion of the grazing allotment outside the study area would be separated from the portion inside the study area. Decisions on grazing outside the study area on the vacated Eberts allotment would be made by the USFS and are outside the scope of this EA. Within the study area, the National Park Service would allow and manage cattle grazing, possibly in cooperation with the Medora Grazing Association and/or the USFS. Grazing is a historical use of the property and commensurate with Theodore Roosevelt's use of the property. In order to preserve the cultural landscape and historical use of the property, the National Park Service recommends that Congress continue to allow grazing.

Water Rights. The Eberts own two registered water rights for irrigation. The water rights are currently used to irrigate some of the approximately 428 acres of cropland (primarily planted in oats, alfalfa, and hay) on the ranch. Details of the two water rights are provided in table 3. In the case of a boundary expansion, the National Park Service would purchase these rights and use them

for park purposes such as irrigation for prairie restoration. These water rights would be put to beneficial uses as defined by state water law. Park managers would consult with the North Dakota State Water Engineer regarding the use of these water rights.

Hazardous Waste Potential and Exotic Species

Hazardous materials surveys have not been conducted on the study area lands. Given the historic use of the lands, however, there is no reason to believe that any of the tracts have been subjected to industrial or commercial uses that would yield hazardous materials. Limited ground observations by NPS staff have not turned up evidence of hazardous materials. Prior to acquisition of any private lands by the National Park Service, Phase 1 Hazardous Materials Surveys would be conducted and, if necessary, Phase 2 surveys as well.

The Eberts know of two ranch-type garbage dumps on their private land and none on the USFS land. The Eberts stated that they have not placed any paints, solvents, or other potentially hazardous substances in the two ranch dumps that they use in the ten years that they have owned the ranch. Within the Mosser property in Section 4, there is a mobile home and a few associated outbuildings. These structures are sometimes rented to individuals as a hunting base and are not associated with active ranch or farm operations. The Mosser parcels are not known or expected to have hazardous wastes.

There are oil and gas facilities (wells, storage tanks, etc.) on the private lands in the boundary expansion area. The Industrial Commission of North Dakota closely monitors and regulates use and disposal of hazardous wastes associated with oil and gas production facilities. Observations by park staff have not identified any hazardous materials or waste dumps in the vicinity of these facilities.

Several noxious weeds (e.g., leafy spurge, Canada thistle, and knapweed) occur in limited quantities within the project area. The Eberts report that they aggressively control these species on their land, to limit their prevalence and potential to spread. Smooth brome, an annual grass, occurs along some road corridors. An exotic plant assessment of the expansion lands would be needed if a boundary expansion is approved. The National Park Service would continue to actively control the spread of exotic species.

Other Issues

Hunting. Hunting currently occurs on lands in the boundary expansion area under the regulations and management of the North Dakota Game and Fish Department. The National Park Service recommends that Congress continue to allow hunting. NPS units that allow hunting are typically called “preserves.” The National Park Service, in cooperation with the Game and Fish Department, would manage hunting to ensure that there are no new impacts associated with the activity.

Agricultural Use. About 428 acres of land on the Eberts Ranch is used for production of oats, alfalfa, and hay. The National Park Service anticipates replanting these areas in native vegetation if the boundary expansion goes forward.

ADEQUACY OF OTHER OPTIONS FOR MANAGEMENT AND RESOURCE PROTECTION

National Preserve Designation

A management alternative considered during an early phase of the boundary study process was to designate a larger area as a national preserve (new unit of the National Park System) managed by Theodore Roosevelt National Park. This alternative was eliminated from further consideration (see "Alternatives Considered but Dismissed from Detailed Consideration"). Scoping letters and media releases that were provided to the public in April 2002, discussed that the area has potential as a national preserve. A national preserve is a unit of the National Park System having characteristics associated with national parks, but in which Congress has permitted continued public hunting, grazing, and oil/gas exploration and production.

Management of the area as a national preserve would adequately protect the resources of these ranch lands associated with Theodore Roosevelt. Management of most national preserves is by the National Park Service, though other agencies (BLM, the Service, and the USFS) currently manage a handful of preserves. Administration of a national preserve for the purpose of managing a cultural landscape, protecting natural resources, encouraging public use, and providing for education and interpretation is most closely associated with the mission of the National Park Service.

Inclusion in the Little Missouri National Grassland (U.S. Forest Service)

The planning team considered this option because the study area lands are adjacent to the Little Missouri National Grassland, administered by the USFS out of Dickinson, North Dakota. National grassland property adjacent to the Eberts Ranch is zoned "3.65 Rangelands with Diverse Natural-Appearing Landscapes" or "3.51A Bighorn Sheep Habitat with Nonfederal Mineral Ownership," according to the recently approved management plan. Management Area 3.65 is managed with an emphasis on maintaining or restoring a diversity of desired plants and animals and ecological processes and functions. It also provides a mix of other rangeland values and uses with limits on facilities to maintain a natural appearing landscape. Area 3.51A is managed to provide quality forage, cover, escape terrain, and solitude for bighorn sheep, while accounting for the possible development of nonfederal mineral ownership. These areas would also possibly allow petroleum resource development of federal minerals once nonfederal production has been established (USFS 2001). Management of the study area by the USFS would be under the multiple-use management concept.

In this option, management of the cultural and historic resources of the site would be passive, which would not allow visitors to make a direct connection to the value of that land as a legacy of Theodore Roosevelt and central to Roosevelt's development of a conservation ethic. The inclusion of the Eberts Ranch into the Little Missouri National Grassland would be contrary to the owner's wish to make a "willing seller" sale to the National Park Service.

PUBLIC INTEREST AND SUPPORT

A press release was issued on 16 April 2002, announcing the NPS intention to conduct a boundary expansion study/EA for Theodore Roosevelt National Park. The press release, or related articles, were carried by most area newspapers and radio stations. Also on 16 April 2002, the National Park Service mailed over 50 scoping letters.

During April through June 2002, Theodore Roosevelt park managers met, spoke with, or sent consultation letters to the following agencies, organizations, and congress people, or their representatives:

COUNTY

Billings County Commissioners
McKenzie County Commissioners

STATE OF NORTH DAKOTA

Department of Agriculture
Division of Tourism
Game and Fish Department
Governor's Office
Area North Dakota State Senators and Representatives
Oil and Gas Division
Parks and Recreation Department
State Historical Society of North Dakota
State Land Department

FEDERAL

U.S. Bureau of Land Management
U.S. Fish and Wildlife Service
U.S. Forest Service (Little Missouri National Grassland)

TRIBES

Fort Peck Assiniboine & Sioux Tribes
Fort Yates Reservation
Spirit Lake Tribe
Three Affiliated Tribes
Trenton Indian Service Area
Turtle Mountain Band of Pembina Chippewa

OTHER

Cass County Wildlife Club
Dickinson Convention and Visitors Bureau
Medora City Council
Medora Grazing Association
North Dakota Petroleum Council
Private Landowners
Private Oil and Gas Companies and Operators
Watford City Chamber of Commerce

The position of most area residents regarding the boundary expansion is not known at this time. The conversion of private land to federal land for any reason is opposed by some. The possible loss of revenue from removing private lands from Billings County tax rolls is likely to be of concern to some residents. The federal government's PILT program, increased park spending, and increased tourism benefits could reduce or eliminate this concern.

The following parties have expressed support for a boundary expansion like that described in alternative B of this boundary study/EA:

Badlands Conservation Alliance
The Ecology Center, Inc.
National Parks Conservation Association
North Dakota Game and Fish Department
Predator Conservation Alliance
Sierra Club, Dacotah Chapter
State Historical Society of North Dakota
The Wilderness Society
World Wildlife Fund

REFERENCES

Benke. A.C.

1990 A perspective on America's vanishing streams. Journal of the North American Benthological Society 9:77-88.

Cogan, D. J. Von Loh, D. Faber-Langendoen, D. Crawford, and M. Pucherelli.

2000 *USGS-NPS Vegetation Mapping Program, Theodore Roosevelt National Park, North Dakota*. Technical Memorandum No. 8260-00-04. U.S. Bureau of Reclamation Technical Service Center, Denver, CO. March 7, 2000.

Corn, M. Lynne.

1998 Congressional Research Service Report for Congress: 98-574: PILT (Payments in Lieu of Taxes) Somewhat Simplified. Available: http://www.cnie.org/nle/rsk-20.html.

Dalaker, Joseph.

2001 *Poverty in the United States: 2000, Current Population Reports, Consumer Income*. Washington, DC: U.S. Department of Commerce, Economic Statistics Administration. Published September 2001.

Donohue, John.

1999. John Donohue's National Park Photos. Cover Photo. Acquired Online at: http://www.serve.com/wizjd/parks/yellowstone/yellowstone.html.

McKenzie County, North Dakota.

2000 McKenzie County Information. Available: http://www.4eyes.net/statistics.htm

Morris, Edmund

1992 Letter from Edmund Morris, Roosevelt Historian, to the U.S. Army Corps of Engineers, November 4, 1992.

National Park Service (NPS).

1987 *General Management Plan*. Theodore Roosevelt National Park. Medora, ND. Approved June 3, 1987.

1990 *The Archeology of Theodore Roosevelt National Park North Dakota: Final Results of the 1987-1989 University of North Dakota Investigations*. Prepared by David Kuehn with contributions by Lowell Blikre and Castle McLaughlin. Theodore Roosevelt National Park: Medora, ND. June 1990.

1990a *Land Protection Plan:* Theodore Roosevelt National Park. Medora, ND.

1994 *Resource Management Plan:* Theodore Roosevelt National Park. Medora, ND.

1994a *Statement for Management*: Theodore Roosevelt National Park. Medora, ND.

1998 *Water Resources Management Plan Theodore Roosevelt National Park, North Dakota*. Prepared by James Berkley, Gene R. Reets, Ph.D., and David Vana-Miller. Approved December 9, 1998.

2000 *History in the National Park Service, Themes & Concepts*. The National Park Service's Revised Thematic Framework, Washington DC, Revised 2000.

2001 *Potential Theodore Roosevelt National Preserve*. Theodore Roosevelt National Park. Medora, ND.

2001a *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making*. January 2001.

2001b Rivers, Trails, and Conservation Assistance Program, Nationwide Rivers Inventory, North Dakota Segments. Available: http://www.ncrc.nps.gov/programs/rtca/nri/STATES/nd.html. Last updated October 10, 2001.

2002. *Site Inspection Trip Report, Theodore Roosevelt National Park: Boundary Study and Environmental Assessment, February 6 and 7, 2002*.

n.d. Summary of Archeological Resources. Theodore Roosevelt National Park: Medora, ND.

Natural Resources Conservation Services

2002 Letter from Steven J. Sieler, Acting State Soil Scientist, North Dakota, to Mr. Noel Poe, Superintendent, Theodore Roosevelt National Park, August 14, 2002.

1998 Final Correlation Report: Billings County. Natural Resources Conservation Service. Bismarck, ND. June 1998.

NatureServe Explorer.

2001 An online encyclopedia of life [web application]. Version 1.6 . Arlington, Virginia, USA: NatureServe. Available: www.natureserve.org/explorer.

North Dakota Parks and Recreation Department.
2002 Letter from Jesse Hanson, North Dakota Parks and Recreation Department, Planning and Natural Resources, to Mr. Noel Poe, Superintendent, Theodore Roosevelt National Park, regarding recreation and biological resources, in particular rare plants and natural communities, affected by the proposed expansion. May 16, 2002.

North Dakota Petroleum Council
2002 Letter from Ron Ness, Executive Director, to Noel Poe, Superintendent, Theodore Roosevelt National Park, May 2, 2002.

Rabeni, C.
1997 Prairie Legacies – Fish and Aquatic Resources. Pages 111-124 in Prairies Conservation. F. Samson and F. Knopf, ed. Island Press, Covela, CA.

Sibley, David Allen.
2000. *National Audubon Society: The Sibley Guide to Birds*. New York: Alfred A. Knopf. First edition published October 2000.

Stanford, J. and J. Ward
1979 Stream regulation in North America. Pages 215-236 in Ecology of regulated streams. J. Wasser and J. Stanford, eds. Plenum Press, New York, NY.

State Historical Society of North Dakota (SHSND)
2002 Letter from Fern Swenson, Director of Historic Preservation, to Noel Poe, Superintendent, Theodore Roosevelt National Park, May 17, 2002.

Taylor, Dee C.
1959 Archeological Investigations of the Elkhorn Ranch Site. Montana State University: Bozeman, MT.

Theodore Roosevelt National Park.
2001 Mammals, Amphibians, and Reptiles Checklist (park brochure). Last revised April 2001.

Theodore Roosevelt Nature and History Association (TRNHA).
Birds of Theodore Roosevelt National Park, North Dakota. Last revised September 2001.

Title 36 Code of Federal Regulations (Parks, Forests, and Public Property), Chapter 1 (National Park Service, Department of the Interior), Part 9 (Minerals Management). Sponsored by the Office of Federal Regulations, National Archives and Records Administration on the United States Government Printing Office Web site. Last updated July 1, 2001. Available at the following address: http://www.access.gpo.gov/nara/cfr/waisidx_01/36cfr9_01.html

United States Fish and Wildlife Service (USFWS).

2002 Personal communication (letter) from the North Dakota Field Office to Noel Poe, Superintendent, Theodore Roosevelt National Park, regarding federal threatened, endangered, and candidate species in the study area and Billings County, ND.

United States Forest Service (USFS)

1991 *Northern Little Missouri National Grassland Oil and Gas Leasing Draft Environmental Impact Statement*. Custer National Forest, U.S. Forest Service Region 1. March 1991.

2001 *Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision for Dakota Prairie Grasslands, Medicine Bow-Routt National Forest, and Nebraska National Forest and Associates Units*. Prepared in cooperation with the Bureau of Land Management and the National Park Service. May 2001.

2001a *Land and Resource Management Plan for the Dakota Prairie Grasslands Northern Region 2001*.

United States Geological Survey (USGS)

Flood Analysis along the Little Missouri River Within and Adjacent to Theodore Roosevelt National Park, North Dakota. Water Resources Investigations Report 86-4090. Prepared by Douglas G. Emerson and Kathleen M. Macek-Rowland in cooperation with the National Park Service.

U.S. Department of Commerce, Bureau of Economic Analysis

2001 Regional Economic Information System 1969-99, Full and Part-Time Employment By Industry. May 2001.

2001a Regional Economic Information System 1969-99, Personal Income by Major Source and Earnings by Major Industry.

U.S. Department of Commerce, Census Bureau.

2001 Census 2000 – Summary Tape File 1 (SF1) 100 Percent Data. July 2001 Available: http://factfinder.census.gov/

2001a Census 2000 – Profiles of General Demographic Characteristics. July 2001. Available: http://factfinder.census.gov/.

2002. *Quick Facts from the US Census Bureau*. Available: http://quickfacts.census.gov/qfd/states/38000.html

U.S. Department of Interior, Bureau of Land Management (BLM). 2000 Payments in Lieu of Taxes for Fiscal Year 2000. Section 6902, Payments by County. Available: HTTP://BLM.GOV.PILT.

2001 "Payments in Lieu of Taxes." Last updated October 2001. Available: HTTP://WWW.BLM.GOV/PILT.

Wallace, George, Pat Reed, and John Mckean
The Impact of External Development on the Economic and Aesthetic Values of Theodore Roosevelt National Park. Department of Recreation Resources/Landscape Architecture, Colorado State University, Fort Collins, CO.

CONSULTATION AND COORDINATION

LIST OF AGENCIES AND ORGANIZATIONS CONTACTED FOR INFORMATION OR RECEIVING A COPY OF THE DRAFT STUDY/ENVIRONMENTAL ASSESSMENT[3]

Throughout the development of this document, Theodore Roosevelt park managers met, spoke with, and/or sent consultation letters to the following agencies, organizations, and members of congress, or their representatives:

Federal Agencies

Bureau of Indian Affairs
Bureau of Land Management
Environmental Protection Agency
National Park Service, Geologic Resources Division
U.S. Department of Agriculture – Natural Resources Conservation Service
U.S. Department of Commerce
U.S. Fish and Wildlife Service
U.S. Forest Service

Tribes

Fort Peck Assiniboine & Sioux Tribes
Fort Yates Reservation
Gros Ventre
Spirit Lake Tribe
Standing Rock Lakota Sioux Tribe
Three Affiliated Tribes
Trenton Indian Service Area
Turtle Mountain Band of Pembina Chippewa

U.S. House of Representatives/State

Senator Kent Conrad
Senator Byron Dorgan
Representative Earl Pomeroy

State and Local Agencies

Billings County Commissioners
Department of Agriculture

[3] See Appendix A for communication documenting agency and tribal consultation and coordination.

Department of Health
Dickinson Convention and Visitors Bureau
Division of Tourism
Game and Fish Department
Governor's Office
Medora City Council
McKenzie County Commissioners
Oil and Gas Division
Parks and Recreation Department
State Historical Society of North Dakota (SHPO)
State Land Department

Other Organizations

Badlands Conservation Alliance
Cass County Wildlife Club
The Ecology Center, Inc.
Medora Grazing Association
National Parks Conservation Association
North Dakota Petroleum Council
Predator Conservation Alliance
Sierra Club, Dacotah Chapter
Theodore Roosevelt Association
Theodore Roosevelt and Medora Foundation
The Wilderness Society
World Wildlife Fund
Watford Chamber of Commerce

The result of any and all consultations with interested tribes regarding tribal issues, ethnographic considerations, etc. will be incorporated, as appropriate, prior to finalizing this Environmental Assessment. No comments were received from the tribes.

LIST OF PREPARERS

This boundary study and EA has been prepared by engineering-environmental Management, Inc. (e^2M) under the direction of Superintendent Noel Poe, Theodore Roosevelt National Park. The park staff and e2M staff that have had substantial involvement in the gathering of information, analysis of data, writing, reviewing, and editing of this document are listed below.

National Park Service; Theodore Roosevelt National Park

Noel Poe; Superintendent
Russell Runge; Chief, Resource Management
Bruce Kaye; Chief, Interpretation and Education
Gary Kiramidjian; Chief, Resource and Visitor Protection
Earl Hempstead; Chief, Facility Management
Steve Hager; Geographical Information System Specialist

engineering-environmental Management, Inc.

Miki Stuebe; NEPA Planning
Dan Niosi; Natural Resources Specialist, NEPA
Chris Baker; Cultural Resources, NEPA
Jayne Aaron; Project Manager, Cultural Resources
Jim Von Loh; Senior Biologist, NEPA
Wanda Gray; Technical Publications Specialist

U.S. Forest Service; Dakota Prairie Grasslands

Steve Williams; Deputy Supervisor, Dakota Prairie Grasslands Supervisor